University of Alberta

A survey to examine Alberta occupational therapists' perceptions of Internet-based continuing education

by

Mei Violet Pui

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Master of Science

Department of Occupational Therapy

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Dedication

To my family, especially my father.

To my husband David, whose love, unwavering support, encouragement, understanding, tolerance, patience, and willingness to listen to me has made this journey possible.

Abstract

This study examined Alberta occupational therapists' perceptions of Internet-based continuing education. A survey questionnaire was developed and mailed to 800 randomly sampled Alberta occupational therapists (response rate = 35.5%; n = 281).

Respondents pursued continuing education to increase skills and knowledge and maintain clinical competency. They preferred non-credit courses and attended face-to-face continuing education more frequently and thought these were more useful than courses delivered by distance. Nevertheless, over 50% of respondents were interested in Internet-based courses and stated they would likely take them. More male respondents and respondents who considered their computer knowledge "sufficient" stated they would likely take Internet-based courses. Although almost 90% of respondents had access to computers with an Internet connection at home or at work, only 2.9% had previously taken Internet-based courses.

Lack of personal time, cost, and limited interaction with other learners and instructors were some of the barriers respondents associated with Internet-based continuing education.

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List of Symbols

df	Degree of freedom
n	Number of respondents for each item
p	p-value
r	Correlation coefficient
t	t-test
χ^2	Chi-square
SD	Standard deviation
%	Percentage

List of Abbreviations

AAROT	Alberta Association of Registered Occupational Therapists
AOTA	American Occupational Therapy Association
CAOT	Canadian Association of Occupational Therapists

Chapter 1

Introduction and Review of the Literature

Continuing Professional Education and Occupational Therapy

Continuing professional education not only promotes continuing competence in clinical practice but also enhances professional (Abreu & Blount, 1993; CAOT, 1996b; Cook, Beery, Sauter & DeVellis, 1987; Hoffman, 1979; Jones & Kirkland, 1984; Strickland, 1993) and personal development (Dickerson & Wittman, 1999). There are two general categories of continuing professional education: *professional continuing education courses*; these are typically delivered through conferences, seminars, workshops, teleconferences, presentations, and *graduate-level educational programs* (Fisher, 2000) such as university courses for credit towards a graduate degree.

Professional Continuing Education Courses

Continuing professional education has long been recognized as necessary for health care professionals including occupational therapists to stay abreast of new developments in practice and to broaden theoretical knowledge (Ernest, 1970; Hoffman, 1979; Johnson et al., 2000; Madill, 1984; Woodside, 1977). According to the Canadian Association of Occupational Therapists' (CAOT) Code of Ethics, "members shall endeavour to maintain and improve their professional knowledge and skill" (CAOT, 1996a, p.2). From this it can be interpreted that the primary responsibility of continuing professional education is placed upon individual. The responsibility for continuing

professional education also rests with the professional associations, employers of occupational therapists, and occupational therapy educational programs (CAOT, 1997). Many believe that the responsibility of continuing professional education is shared between the professional associations and the individual (Brockett & Bauer, 1998).

Most health professionals would agree that continuing professional education is one way to maintain clinical competency. In the United States, the American Occupational Therapy Association (AOTA) places the responsibility of maintaining competence on its occupational therapists (Gourley, 2001) as stated in the Occupational Therapy Code of Ethics (AOTA, 1994), and requires occupational therapists to maintain competence in their practice skills through continuing professional education (Long & Emery, 2000). "The AOTA is developing a program to assist members in identifying quality continuing professional education programs and evaluating if these programs have met the predetermined standards of AOTA [so as] to help members to maintain competence" (Gourley, 2001, p. 14). The National Board for Certification in Occupational Therapy (NBCOT) is developing national standards for continuing competency in occupational therapy (Fisher, 2000) for recertification (Gourley, 2001). As of June 2001, twenty-seven state licensure boards, along with Puerto Rico, have mandated continuing professional education as one of the licence renewal requirements for occupational therapists (AOTA, 2001a).

In Canada, the maintenance of professional competency is mentioned in the CAOT Code of Ethics and in the Alberta Health Professions Act (Alberta Statutes and Regulations, 1999), but there is no explicit link made in these documents between continuing competency and continuing professional education.

Graduate-level Educational Programs

In the past, graduate study in occupational therapy has been recognized as desirable to prepare occupational therapists to take leadership roles and to engage in research activities (Madill & Wood, 1985; Maxwell & Maxwell, 1979; Pierce, Jackson, Rogosky-Grassi, Thompson & Menninger, 1987; Woodside, 1977). More recently, the need has arisen to distinguish between post-degree graduate programs, and professional Master's degree in occupational therapy, as is explained in more detail below.

Post-degree graduate programs.

Post-degree graduate programs are considered to be *continuing professional education* as such programs are directed at those occupational therapists who already have completed an entry-level degree in occupational therapy. Usually this entry-level degree is at the baccalaureate level. Currently, there are 11 and 41 Master's degree programs available across Canada and the United States respectively for occupational therapists who wish to pursue graduate education either in occupational therapy, rehabilitation, or health sciences (AOTA, 2001b; see bibliography for Canadian universities websites). For the purpose of this review, those occupational therapists who pursue graduate level training or a second entry-level degree in other areas such as medicine or law would not be considered as pursuing continuing professional education.

Professional Master's degree in occupational therapy.

The Canadian Association of Occupational Therapists (CAOT) recently announced that by 2010, all entry-level programs in occupational therapy would be at the Master's level (CAOT, 2002a). The reasons given by CAOT for the change were to prepare occupational therapists for greater accountability, and to help address the shortage of occupational therapists in Canada (CAOT, 2002a; von Zweck, 2002). In the United States, a Master's level requirement as the entry credential for occupational therapists will be in effect by 2006 (CAOT, 2002a).

Professional Master's degree courses are not considered as *continuing professional education* per se. However, it is recognized that some courses in such Master's entry programs in occupational therapy may be accessible by currently practising occupational therapists. This is the case for many elective or "selective" courses in the University of Alberta occupational therapy program. In this case, if a course in a Master's entry program is used by a practising occupational therapist for upgrading purposes, then it is considered continuing professional education for that individual.

Barriers to Continuing Professional Education

In Canada, a wide range of continuing professional education opportunities are available. They can be classified as formal (e.g., conferences, workshops, academic courses, and certificate courses), semi-formal (e.g., in-services, seminars,

teleconferences, and self-study courses), and informal activities (e.g., reading journals, research, and supervision of students) (CAOT, 1997).

Accessing continuing professional education is not always straightforward for occupational therapists. Barriers to professional continuing education courses include geography, time constraints, inconvenient schedules, work conflict, lack of energy, costs, and family obligations (Harvey, 1983; Robertson, 1986; Simons, 1999). Lack of appropriate programs is another barrier (Banister Research & Consulting Inc., 1999; Harvey, 1983). Similar obstacles have also been identified by occupational therapists who would like to pursue graduate-level educational programs (Dickerson & Wittman, 1999; Simons, 1999; Wood & Madill, 1985).

One way to overcome some of these barriers is to participate in continuing professional education delivered in an alternative format that does not require face-to-face interaction. Alternate delivery methods include the use of Internet, teleconference, and videoconference. Various technologies can be used with these alternate delivery methods. Live broadcasts via satellite and videoconference are gaining in popularity among health care professionals. However, these technologies do not always completely address the geographical barriers and time conflict. Both satellite live broadcasts and videoconferencing require specific equipment and the participants must travel to the site during work hours (Liu, Cook & Varnhagen, 2001). The equipment is often located in institutional spaces that are used for multiple purposes. Frequently, videoconference equipment is prioritized for use in clinical consultations. Therefore, equipment and space may not always be available for continuing professional education purposes even if learners are available to attend. Teleconference, or live communication using telephones,

is more flexible than videoconference and satellite broadcasts but communication is limited to audio and is typically conducted in real time. These sessions can be audiotaped or videotaped but this does not allow learners to interact with the presenters.

Personal computers may be more accessible than the technologies mentioned above. Internet-based continuing education appears to be a promising new delivery method, providing flexibility through synchronous and asynchronous communication. Through this method visual, audio, and textual information can be communicated to learners. It would appear that Internet is one method that can address many of the barriers currently faced by the occupational therapists who wish to participate in continuing professional education.

The Internet

Internet-based Education

The origin of distance education dates back to as early as 1728 when reliable regular postal service became available to make correspondence education possible (Mood, 1995). More recently, Portway and Lane (1994) re-defined distance education as "teaching and learning situations in which the instructor and the learner or learners are geographically separated, … [and] rely on electronic devices and print materials for instructional delivery" (p.195). This definition can be expanded beyond geographical separation; it should also take the factor of time into consideration. Learners may be geographically close but their time restrictions do not permit them to attend a course together in "real time". Information technology has played an important part in

delivering courses in a flexible manner for graduate occupational therapy students around the world (Rodger & Brown, 2000) regardless of separation due to geography or time.

Internet technology has been increasingly used to facilitate and enhance the process of education delivery, and make education accessible to more people. Since the creation of the World Wide Web by Berners-Lee in 1990 in Geneva (The Associated Press, 2000), the availability of Internet technology has continued to increase. Today, the Internet has become a predominant technology in distance education (The Institute for Higher Education Policy, 2000). In the United States, there was a 38% increase from 1995 to 1999 in the number of higher education institutions in the U.S. using computer technology to deliver courses to students (as cited in Short, 2000). Similar statistics are not available for Canada. However, it is known that during 1999/2000 academic year, the University of Alberta was possibly the largest user of WebCT applications in North America (Smith, 2001). It had a 266.7% increase in courses integrating WebCT, and a 689.7% increase in students registered in WebCT courses in 2000/2001 compared to 1998/1999 academic year.

Internet Use

In Canada, the province of Alberta maintained the highest household Internet use for two consecutive years. According to a Household Internet Use Survey (Statistics Canada, 2001a), almost 59% of households in Alberta with at least one regular Internet user accessed the Internet from any location in 2000, an increase from 50.8% in 1999 (Dickinson & Ellison, 2000). Household Internet use continues to increase in Canada. According to Statistics Canada (2002), in Alberta, 44.1% of households were connected

to the Internet at home, and 36.1% at work in 2000 compared to 34.1% at home and 27.6% at work in 1999 (Dickinson & Ellison, 2000). With respect to high-speed Internet use at home, as of November 1999, 12% of all households in Canada, and 23.4% in the prairie provinces (includes Alberta) were connected by high-speed (cable, ADSL) to the Internet (April, 2000). Statistics Canada (2001b) reported that the proportion of men (56%) was slightly higher than the proportion of women (50%) using the Internet in 2000.

The Canadian Association of Occupational Therapists (CAOT) Membership Statistics 2000 reported that 75% of CAOT members have access to the Internet at home and 61% at work (CAOT, 2002b) compared to 59.7% at home and 41.1% at work in 1999 (CAOT, 2002c). However, specific data on Alberta occupational therapists are not available. Based on Statistics Canada reports, it is reasonable to expect that the accessibility of Internet for Alberta occupational therapists is comparable or even higher than the national report from CAOT.

Internet Use and Occupational Therapy

Internet-based Continuing Professional Education in Occupational Therapy

Would alternative delivery methods for continuing professional education solve the barriers identified by occupational therapists and still fulfill their learning needs?

It has been recognized that Internet-based continuing education can remove physical and time constraints for occupational therapists to pursue continuing professional education by allowing learners to access courses from a distance through the

Internet at their preferred time (asynchronous), and from virtually any location where there is a personal computer (King, 1999; Simons, 1999; Steward, 2001). It can also remove pressures on their family, work (Simons, 1999) and social commitments because it can remove learners' need to travel to the education site (King, 1999; Steward, 2001). In these ways, the Internet could be used to enhance occupational therapists' continuing professional development (King, 1999; Steward, 2001). However, the Internet may not remove all barriers and may even introduce additional challenges. For example, some learners may require more personal time to meet course requirements through the Internet compared to face-to-face courses such as workshops and conferences, especially if they have to become familiar with computer and Internet technologies. Internet courses tend to be more expensive than traditional courses as registration fees are usually higher, there is a need to have a personal computer and have Internet access, and there is still the need for course materials such as manuals, textbooks, and other reference materials. In addition, Internet-based courses tend to be individually based / student-centred, require a lot of self-discipline and are new method to many learners. Finally, Internet-based courses may reduce the opportunities for collegial contact with instructors, and learners (Steward, 2001). Nevertheless, for some learners the benefits of more access to courses may outweigh these challenges.

Several universities have piloted, are offering, or plan to offer Web-based or Internet-based courses in Canada. The University of British Columbia piloted three undergraduate Web-based courses for occupational therapy and physical therapy combined from 1998 to 2000 (Stanton, 2001). The University of Alberta and Dalhousie University (Dalhousie University, n.d.) are offering Internet-based occupational therapy

graduate-level distance education courses directed at rehabilitation professionals. Also, as of January 2002, McGill University was the first Canadian university to offer a course-based post-degree Master of Science in Rehabilitation Science completely online (McGill University, n.d.).

Occupational Therapists' Interest in Internet-based Continuing Professional Education

Banister Research & Consulting Inc. (1999) randomly surveyed Alberta rehabilitation practitioners (occupational therapists, physical therapists and speech language and audiologists) by telephone from September 1998 to March 1999 in order to identify their interest in professional development opportunities. Of the 64 occupational-therapist respondents, 14 were from Calgary and 42 were from the Capital region (Edmonton). However, both the sample size (the total number of Alberta occupational therapists telephoned for interview) and the response rate of the telephone survey were not mentioned in the report. The report indicated that 58.5% of Alberta occupational-therapists respondents felt that "Web-based courses as a method of delivering continuous learning and professional development" (p.51) were important to them, even though only 4.1% of the respondents indicated that they had used the Internet in the past 12 months. Comparisons between respondents from major and rural cities, or between primary work setting such as hospital-based and non-hospital-based occupational therapists were not done. The same report also found that 87.5% of the respondents came from major cities, and almost 43% had to travel to attend a continuing professional education course. In this survey, travel was identified as a barrier in addition to time constraints, and lack of relevance of topics.

In 1999, Stanton conducted a similar survey on a convenience sample by fax. Surveys were sent to 1574 occupational and physical therapists in British Columbia to assess their interest in Web-based learning and to identify continuing professional education needs (Stanton, 2001). Of the 396 surveys returned (a response rate of 25.2%), 366 (23.2%) were usable. She found that 80% of the respondents were interested in both Web-based courses and a combination of face-to-face and Web-based learning. Of these, 13.9% preferred Web-based courses even though 86.1% had Internet access. Since this survey study was based on both physical and occupational therapists, specific data on occupational therapy were not available. Also questions about computer knowledge were not asked in this study. The use of convenience sampling in her study excluded those therapists without access to fax machines, thereby possibly limiting the generalizability (Stanton, 2001).

In the United States, Simons (1999) conducted a mail survey, which incorporated Dillman's Total Design Method and yielded a response rate of 88%. This survey determined the level of interest in a networked computer-based, post-professional program in occupational therapy among Baccalaureate-level occupational therapists in four middle Atlantic states. The research findings indicated that 52.0% of the 349 respondents were interested in computer-based distance education for pursuing an occupational therapy post-professional program.

Summary of the Literature Review

Continuing professional education has long been recognized as important for health care professionals. Continuing professional education enhances personal (Dickerson & Wittman, 1999) and professional development, and also promotes continuing competency for occupational therapists (Abreu & Blount, 1993; CAOT, 1996b; Cook, Beery, Sauter & DeVellis, 1987; Hoffman, 1979; Jones & Kirkland, 1984; Strickland, 1993). The American Occupational Therapy Association links continuing professional education to continuing competency. Based on a review of the literature, occupational therapists have identified barriers such as time constraints, costs, family and social obligations, lack of availability, and lack of relevance of topics in accessing continuing professional and graduate-level education courses delivered in face-to-face formats (Banister Research & Consulting Inc., 1999; Dickerson & Wittman, 1999; Harvey, 1983; Robertson, 1986; Simons, 1999; Wood & Madill, 1985). Occupational therapists have indicated an interest in alternatives to traditional, centrally-located, face-to-face continuing professional education (Banister Research & Consulting Inc., 1999; Simons, 1999; Stanton, 2001). One alternative to the traditional continuing professional education is course delivery through the Internet. A large proportion of occupational therapists have an Internet connection at home (75%) and at work (61%) (CAOT, 2002b). The ubiquitous use of personal computers in our daily lives and professional practice suggests that continuing professional education brought to desktop personal computers would be more accessible and could be associated with fewer barriers than attending face-to-face continuing professional education courses.

Rationale for the Study

When compared to other health professions such as nursing, there is a relatively small population of occupational therapists serving the wide geographic area of Alberta. However, like nursing, occupational therapy training traditionally involves hands-on practice, observations and collegial contact with instructors and learners (Steward, 2001). Thus, occupational therapists face a unique challenge because of their low numbers, distribution across a wide geography, and the need for hands-on training.

Continuing professional education has been recognised as important for the development of occupational therapy profession and its individual practitioners (Abreu & Blount, 1993; CAOT, 1996b; Cook, Beery, Sauter & DeVellis, 1987; Dickerson & Wittman, 1999; Hoffman, 1979; Jones & Kirkland, 1984; Strickland, 1993). The literature showed that occupational therapists have identified barriers to accessing continuing professional education, usually in the traditional face-to-face formats, (Banister Research & Consulting Inc., 1999; Dickerson & Wittman, 1999; Harvey, 1983; Robertson, 1986; Simons, 1999; Wood & Madill, 1985). Occupational therapists indicated an interest in alternatives to the traditional face-to-face formats (Banister Research & Consulting Inc., 1999; Simons, 1999; Stanton, 2001).

The trend in delivering continuing professional education is to use the Internet (King, 1999; Simons, 1999; Steward, 2001). With the increasing availability of Internet technology, more universities are offering Internet-based continuing education courses. Its flexibility may overcome barriers of both geographical locations (travel), and time through communication technologies. It allows learners to access continuing

professional education at their preferred time and place (King, 1999; Simons, 1999; Stanton, 2001), and potentially removes pressures on their family, work (Simons, 1999) and social obligations.

Since the announcement of the professional Master's degree in occupational therapy as a requirement for academic accreditation by CAOT (2002a), there may be an increasing demand for university credit courses via Internet to "upgrade" baccalaureate level occupational therapists to a Master of Science level without the necessity of taking time off from employment. In other words, there may be more demand for Internet-based course-based Master of Science degree programs like the one currently being offered by McGill University (McGill University, n.d.).

The two Canadian studies conducted in 1999 were the first to provide insights on occupational therapists and Internet-based education (Banister Research & Consulting Inc., 1999; Stanton, 2001); however, both studies used convenience sampling by telephone or by fax. Stanton's survey was based on both physical and occupational therapists, and data for individual disciplines were not available from her report. The Banister report did not specifically examine Internet-based courses but rather continuing professional education in general (Banister Research & Consulting Inc., 1999). One Canadian and one American study found widely divergent proportions of respondents interested in Internet-based continuing professional education (Simons, 1999; Stanton, 2001) would need further exploration. This might be due to different survey question-designs and sampling methods used. Overall, there is no information specific to Alberta occupational therapists and their perceptions of Internet-based continuing professional education. Further research would be needed to address the methodological limitations

of previous surveys. Evaluations of learners' perceptions and experiences with Internet technology would assist content providers to become aware of learners' preferences when these learners pursue continuing professional education for personal and professional development or for meeting competency requirements.

There appears to be an assumption that when compared to other technologies, the Internet can address the barriers associated with continuing professional education, specifically, geographical distance and time constraints. Nevertheless, it is not known whether the Internet really addresses these barriers, and how the barriers are perceived by the potential learners. Even if the Internet does adequately address the issues of geography and time constraints, what different challenges does the Internet introduce?

The extent to which the barriers are addressed through Internet use is not known. Study in Canada has shown that British Columbia therapists were somewhat interested in Web-based learning. But do Internet-based courses address the barriers encountered in face-to-face continuing professional education? It is not known how occupational therapists perceive continuing professional education through the Internet, how many have taken Internet-based courses, and how many have an interest or intend to take continuing professional education over the Internet. As a result, a survey that examined Alberta occupational therapists' perceptions of Internet-based continuing education was warranted.

Purpose of this Study

The purpose of this study was to conduct a survey with Alberta occupational therapists, to examine their perceptions of continuing professional education over the Internet. The survey also examined factors that might be associated with respondents' perceived likelihood of taking Internet-based continuing education courses, and related factors such as respondents' access to and experiences with computers and the Internet, and the challenges they perceived to be related to Internet-based continuing professional education. Formal hypotheses were not used because of inadequate literature to guide the generation of hypotheses.

Overall Objectives and Research Questions

There were three objectives for this study.

The first objective was to describe Alberta occupational therapists' demographic characteristics, participation in and reasons for pursuing continuing professional education (this included an examination of continuing professional education delivered using a variety of methods), accessibility to computers and the Internet, perceived computer experiences and knowledge, and perceptions about Internet-based continuing education.

The second objective was to examine Alberta occupational therapists' perceived likelihood of taking continuing professional education via the Internet. This included an examination of Alberta occupational therapists' degree of interest in and perceived

likelihood of taking Internet-based continuing education. Because this objective was the focus of the present research study, a list of expectations were developed for specific research questions: what are the factors that may be associated with respondents' perceived *likelihood* of taking continuing professional education over the Internet?

a) Gender;

b) Place of residence (divided in three categories). In addition, are there differences between categories of place of residence in attending different approaches of continuing professional education?

c) Primary work setting (hospital-based and non-hospital-based settings); and

d) Respondents' reported computer knowledge.

The third objective was to report on the Alberta occupational therapists' perceived challenges associated with Internet-based continuing education courses. The literature has reported that accessing appropriate content can be perceived as a challenge (Banister Research & Consulting Inc., 1999; Harvey, 1983; Wood & Madill, 1985). Therefore, under this objective, respondents were asked to suggest content they would like to access for continuing professional education over the Internet.

Expectations

Following from Statistics Canada findings (2001b), it was expected that in this survey more male respondents would rate that themselves as likely ("61 – 80%" or "81-100%" in question 16 of the survey) to take Internet-based continuing education courses. As geography tends to be a barrier to rural sites, it was expected that more occupational therapists residing in rural Alberta would rate themselves as likely to take Internet-based continuing education courses compared to those residing in Edmonton, Calgary and outlying communities. In addition, it was anticipated that respondents who resided in rural Alberta would make more extensive use of alternate and distance delivery (teleconference and video conference or telehealth) to access continuing professional education courses than those who resided in the major cities of Alberta. Moreover, it was expected that more non-hospital-based respondents would rate themselves as likely to take Internet-based courses compared to those who were hospital-based, and that respondents who reported their computer knowledge as "sufficient" would rate themselves as likely to take Internet-based continuing education courses compared to those who perceived their computer knowledge as "not sufficient".

Operational Definitions

Continuing professional education - The terms "continuing professional education," and "continuing education" are used interchangeably in this study. Continuing professional education is defined as "a process, located inside or outside an academic institution, that depends on content experts who are promoted as highly skilled in a given field or specialty area and whose goal is to transmit knowledge with practical and clinical application" (Abreu & Blount, 1993, p. 82); or to enhance continuing competence (CAOT, 1996b) in clinical practice and professional development. There are two kinds of continuing professional education: *professional continuing education courses* (typically delivered through conferences, seminars, workshops, teleconferences, and presentations) and *graduate-level educational programs* (Fisher, 2000) such as university courses for credit towards a graduate degree.

Internet-based continuing professional education – The term "Internet-based" which includes Web-based is defined in this study refers to the connections among computers and computer networks around the world including the World Wide Web (WWW); File Transfer Protocol (FTP); Telnet; electronic mail; online communications such as chat rooms, Bulletin Boards and WebBoards; and access to electronic databases. "Internet-based continuing professional education" or "Internet-based continuing education" refers to the use of Internet technology to provide occupational-therapist learners with educational materials and experiences in specific subject matters.

Perceptions – Defined as opinions regarding continuing professional education: professional continuing education courses and graduate-level educational programs which include Internet-based continuing professional education.

Interests – Defined as the desire for pursuing Internet-based professional continuing education or graduate-level educational courses.

Likelihood – Defined as how willing the respondents felt they were to take an Internet-based continuing education course on a topic of interest to them if course, length of the course, and time schedule were not a concern to them. Respondents' perceived likelihood was rated on a five-point scale: 0-20%, 21-40%, 41-60%, 61-80%, and 81-100%.

Challenges – Refers to barriers that Alberta occupational therapists identified when considering taking Internet-based continuing professional education.

Place of residence – Defined by three categories (see survey question number 20):

1) Major cities: Edmonton and suburbs, Calgary and suburbs;
2) Medium-sized cities were categorized according to the 2001 Official Population List, with a population of over 35,000 except Edmonton and Calgary and their suburbs (Alberta, Canada – A Wealth of Opportunity, 2001): Fort McMurray, Grande Prairie, Lethbridge, Medicine Hat, and Red Deer; and
3) Rural Alberta: Other.

Three approaches of continuing professional education – For the purpose of this study, continuing professional education is accessible by 3 approaches:

1) Face-to-face such as conference, presentation, or seminar / workshop;
2) Home study such as correspondence course, or home education;
3) Technology such as Internet course, teleconference, videoconference, or telehealth.

Primary work setting – Defined by two groups (see survey question number 24):

1) Hospital-based; and
2) Non-hospital-based settings.

Synchronous communication technologies - Synchronous technologies include "desktop video teleconferencing and interactive group video teleconferencing, enable live, real-time interaction between instructors and learners" (Chute, Sayers & Gardner, 1997, p. 76).

Asynchronous communication technologies - Asynchronous technologies include "e-mail, multimedia databases, virtual libraries, and the Internet, support non-real-time interactions and access to vast information resources at a time and place convenient to the learners" (Chute, Sayers & Gardner, 1997, p. 76).

Chapter 2

Methods

Research Design

Justification of Research Design

Descriptive survey designs are commonly used in health sciences research and elsewhere to collect opinions and to describe characteristics of a sample (Polgar & Thomas, 2000; Stein & Cutler, 2000). A survey is also generally conducted as a necessary first step before planning services (Stein & Cutler, 2000). Therefore, a survey was chosen in this study to collect information regarding Alberta occupational therapists' perceptions of continuing professional education and continuing education using the Internet.

Justification of Mail Survey Design

Mail, telephone, interview, and Internet are the most common methods for surveys. Mail survey was chosen for this study, and the reasons were twofold. First, mail surveys provide a better representation of the sample distribution than an Internet survey (Dillman, 2000; Ferber & Verdoorn, 1967; Fleitas, 1998; Houston & Fiore, 1998) by avoiding the pitfall of not all individuals' having access to a computer or if they have one, not regularly checking their e-mail. Second, the cost and the burden on respondents are relatively less for mail survey than for face-to-face interviews or telephone surveys (Dillman, 2000; Ferber & Verdoorn, 1967). Indeed, telephone surveys have become a

less effective data collection method than before due to the prevalence of answering machines, caller ID and call-blocking devices (Dillman, 2000).

Sample

Sample Size Calculation

Based on a pre-set goal response rate of 50%, 800 occupational therapists from Alberta Association of Registered Occupational Therapists (AAROT) were randomly sampled (see Appendix A).

Sample Criteria

Mailing labels were purchased from AAROT on September 07, 2001. AAROT is a regulatory body for licensure of occupational therapists in Alberta, and it has the most complete list of practising occupational therapists in Alberta. AAROT classifies its members into five categories:

1) *Active* – those who are actively practising occupational therapy;
2) *Inactive* – those who are not actively practising occupational therapy;
3) *Restricted practitioner* – those who can only practise occupational therapy under the supervision of a registered occupational therapist with an active membership;
4) *Associate* – those who are not occupational therapists but would like to receive the newsletter from AAROT; and

5) *Student* – those who have not finished their occupational therapy degree and cannot practise occupational therapy.

As shown in Table 2-1, there were 1108 occupational therapists registered as active, inactive and restricted practitioner members as of September 06, 2001. There were no associate or student members of AAROT at the time.

Table 2-1

AAROT Membership Status As of September 06, 2001

Categories	Female	Male	**Total**
Active	921	85	**1006**
Inactive	89	5	**94**
Restrictive practitioners	6	2	**8**
Total	**1016**	**92**	**1108**

Inclusion criteria.

Individuals were eligible for this study if they were occupational therapists registered as active members with AAROT and if their mailing addresses were in Alberta.

Exclusion criteria.

Five members who participated in the pilot study and provided feedback on the survey, five members with their mailing addresses outside Alberta, and the principal investigator of this study were excluded.

The principal investigator of this study manually categorized by place of residence the 995 eligible participants of this study into eight groups according to the choices provided under question number 20 of the survey (see Appendix B). These eight groups were further categorized as *major cities* (Edmonton and suburbs, and Calgary and suburbs), *medium-sized cities* (Fort McMurray, Grande Prairie, Lethbridge, Medicine Hat, and Red Deer), and *rural areas* (other). Table 2-2 shows the distribution of place of residence.

Table 2-2

Distribution of Place of Residence for 995 Eligible Participants As of September 06, 2001

Place of residence	Number	%
Edmonton (and suburbs)	475	47.7
Calgary (and suburbs)	280	28.1
Fort McMurray	4	0.4
Grande Prairie	17	1.7
Lethbridge	20	2.0
Medicine Hat	17	1.7
Red Deer	23	2.3
Other	159	16.0
Total	995	

Procedures

Development of the Survey Questionnaire

A survey questionnaire (see Appendix B) was developed for this study by the principal investigator. It was based on literature review and the objectives of this study. For example, question number two which asked respondents to rank their top three reasons for taking continuing professional education, was partially based on the study by Dickerson and Wittman (1999).

The scales for questions 5, 10, 12, and 15 were based on a 5-point scale, but labels were assigned only to 1, 3, and 5 in order to collect quasi-interval data (scale 2, and 4 were not labelled). The survey questionnaire was divided into four parts.

The aim of part 1 of the survey was to gather information on respondents' experiences and perceptions with continuing professional education in general. It was also hoped that by not focusing on technology at the beginning of the survey, this would help encourage respondents who were unfamiliar with Internet to complete and return the survey.

Part 2 of the questionnaire examined computer and Internet access, and computer knowledge. This part also served as a bridging section leading to the next section that would focus on Internet-based continuing education.

Part 3 provided the data for the focus of this study. Its purpose was to examine respondents' perceptions of Internet-based continuing education. An open-ended question was included in this part of the survey questionnaire, to avoid bias and restrictions, and to collect occupational therapy-related topics that respondents would be most likely to take through the Internet-based continuing education (Dillman, 2000; McGibbon, 1997).

The last part of the questionnaire was used to obtain demographic information on the respondents. For "place of residence" (see Appendix B, survey question number 20), cities were categorized according to the 2001 Official Population List, with a population of over 35,000 (Alberta, Canada – A Wealth of Opportunity, 2001). It was thought that survey recipients might consider the demographic questions as highly personal and placing them at the beginning of the survey might discourage recipients from responding

altogether (Babbie, 1990; Dillman, 2000; French, Reynolds & Swain, 2001). By placing demographic questions at the end, it was hoped that respondents would be more likely to return the surveys after spending time answering the previous parts of the questionnaire (Dillman, 2000). However, in the results section of this study, the demographic characteristics of the respondents would be presented first. In other words, the order of presentation of results is not in the same order as in the questionnaire.

Pilot Study of the Draft Survey Instrument

In March 2001, the survey instrument was piloted by a panel of five occupational therapists in order to identify unclear or ambiguous questions (Fink & Kosecoff, 1985; Fowler, 2002; French, Reynolds & Swain, 2001; Portney & Watkins, 2000). These participants were similar to the eligible participants (Babbie, 1990; Dillman, 2000; French, Reynolds & Swain, 2001; Portney & Watkins, 2000). Feedback was obtained on wording, length, and content of the survey. Some questions were modified for clarity. The length of time for respondents to complete the survey ranged from 11 to 17.5 minutes, with a mean time of 14.8 minutes (SD = 2.54).

The survey packages contained a one-page cover letter (see Appendix C) (Dillman, 2000; Portney & Watkins, 2000), the four-page (double-sided) survey questionnaires (eight pages total) and a business reply envelope with the address of the Department of Occupational Therapy, Faculty of Rehabilitation Medicine, University of Alberta. Factors such as university sponsorship, first-class outgoing postage, and follow-up letter can increase the mail survey response rates (Dillman, 2000; Fox, Crask & Jonghoon, 1988; Heberlein & Baumgartner, 1978). It was hoped that the anonymity of

the survey would enhance the response rate and the respondents' willingness to honestly disclose requested information.

Code Book

A Code Book for data entry and analyses for the survey was developed along with the survey questionnaire. For example, demographic data such as gender was coded 1 for males, and 2 for females. The benefit of having a Code Book was to ensure accuracy and consistency of data entry.

Sampling Method

On September 07, 2001 when the mailing labels were purchased, 995 active members of AAROT met the inclusion criteria. Instead of randomly selecting 800 active members to be included in this study, a systematic random sample of 195 active members were selected not to be included. This was done by picking a random number from a Random Numbers Table (Myers & Well, 1995, p. 606) to indicate the first active member to be excluded from the study. After this first excluded member from the 995 alphabetical list of active members, every fifth active member was then excluded until 195 active members were selected for exclusion. The remaining 800 active members on the list constituted a systematic randomly selected sample of the population of active members of AAROT.

Schedule on Mail Out and Follow-up Letters

The survey packages were first sent to the 800 randomly selected active members on October 05, 2001 (Friday). Eight survey packages were returned as undeliverable. These eight members were not replaced. About 3 weeks later, follow-up reminder letters (see Appendix D) were sent on October 25, 2001 to the remaining 792 occupational therapists (Babbie, 1990; French, Reynolds & Swain, 2001; Portney & Watkins, 2000). Follow-up letters can help to increase the response rate of a study (Babbie, 1990; Dillman, 2000; French, Reynolds & Swain, 2001).

Availability of the Questionnaires

Respondents were advised in the follow-up letter that if they had misplaced the questionnaires, they could obtain a copy of the questionnaire from the Internet at http://www.rehabmed.ualberta.ca/survey or they could request a copy by e-mail or by telephone. This would still preserve anonymity because no coding was used to identify the respondents in any of these cases. Four individuals requested another copy of the questionnaire, two by e-mail and two by phone. It is not known how many individuals obtained a copy of the questionnaire from the Internet.

Data Inclusion and Data Entry

Although the deadline to return the questionnaires was indicated to be November 12, 2001, questionnaires were accepted up to January 02, 2002.

Upon receiving the returned questionnaires, the principal investigator entered the collected information from the questionnaires using SPSS software (Norusis, 2000) according to the Code Book.

Expected Response Rate of the Survey

Williams (1989) conducted a mail survey among 380 practising occupational therapists in Alberta and obtained a response rate of 62.9% without a follow-up. Shim (1999) also carried out a mail survey using 113 Alberta occupational therapists and obtained a response rate of 52.2% with one follow-up letter. Based on the response rates of these previous two studies, it was hoped that the survey in this study would yield a response rate of 50%. However, mail survey response rates generally range from 10% - 40% (O'Rourke, 1999; as cited in Wilson, 1999). According to Armstrong and Lusk (1987) the response rates for business reply mail surveys can range from 5.6% to 66.3%.

Statistical Analyses

Descriptive statistics in the form of percentages, means, standard deviations, and median (Aday, 1996; Glass & Hopkins, 1996; Norusis, 2000; Warren, 1997) were obtained using SPSS software (Norusis, 2000). Information collected from the open-ended questions was classified into categories manually.

Inferential statistical procedures (Black, 1999; Glass & Hopkins, 1996; Myers & Well, 1995; Norusis, 2000) were used to address the research questions, and to determine the level of representation of the sample. Chi-square procedures were used to compare the gender distribution of the respondents to the population distribution (obtained from

AAROT) and to the national distribution (obtained from the Canadian Association of Occupational Therapists, 2002b), and to compare the distribution of the place of residence among the respondents to the population distribution (obtained from the mailing labels from AAROT). Gender distribution was the only information readily available from AAROT. The principal researcher of this study manually categorized the place of residence of all eligible participants into eight pre-determined groups according to the survey question number 20. The Pearson Product Moment Correlation illustrated the correlation between *degree of interest* and perceived *likelihood*. The Independent-samples t-test was used to examine the difference of perceived *likelihood* (mean value) between *gender* (male and female), and between *primary work setting* (hospital-based / non-hospital-based). An ANOVA design with Repeated Measures was used to examine if *geographical location* was a factor associated with respondents' participation in *different approaches of continuing professional education*. One-way analysis of variance (ANOVA) was used to examine differences of *perceived likelihood* between categories of *place of residence*, and between different levels of reported *computer knowledge*. Multiple Comparisons were used if results from ANOVA were significant to determine where the significant differences were. An alpha value of .05 was chosen for each analysis.

Ethical Considerations

This study obtained ethical approval from the Health Research Ethics Board, Panel B (Health Research) in July 2001. The following key Ethics Principles (Garrett, Baillie & Garrett, 1993; Health Research Ethics Board, 2001) were adhered to:

1) Potential respondents were told that participation in this survey study was completely voluntary.
2) Respondents could choose to withdraw from the study at any time by not returning the questionnaire.
3) By returning the questionnaire, respondents indicated their consent to participate in this study.
4) The survey preserved anonymity since no coding was used to identify respondents and thus no one could trace respondents' identities.
5) There were no known risks to participants by completing the questionnaire. Time burden on respondents to complete the questionnaire was approximately 15 minutes.
6) Returned questionnaires were stored in a safely locked and secured place in the occupational therapy department at the University of Alberta. These questionnaires would be stored for 5 years as required by the University of Alberta, after which they would be shredded.
7) Only the research committee would have access to the returned surveys.
8) Only aggregate data would be made available in publications, not individual data.

Chapter 3

Results

Response Rate and Data Integrity

Response Rate

Of the 800 survey packages mailed, eight were undeliverable. Out of the remaining 792 deliverable survey packages, 281 respondents (35.5%) returned the survey questionnaires. Of 281 respondents, 202 (71.9%) were received before sending out the follow-up letter; the remaining 79 (28.1%) were received subsequent to the follow-up letters.

Of the 281 returned questionnaires, 276 (98.2%) were usable indicating a usable response rate of 34.8%. One respondent did not answer most of the demographic questions; another respondent left the entire survey blank because the respondent had recently retired; the third was not actively working as an occupational therapist, therefore, did not meet the criteria for inclusion in this study; and the remaining two questionnaires were received after January 02, 2002 deadline. None of this data was included in the reported analyses.

While the overall response rate of 35.5% was less than the anticipated 50%, the rate did compare favourably with a similar survey conducted by Stanton (2001) who obtained a response rate of 25.2%. The response rate of 35.5% was also within the acceptable ranges as reported by Armstrong and Lusk (1987), O'Rourke (1999), and Wilson (1999). A number of factors might have affected the response rate of this study.

First, at about the time of this survey, another survey was conducted by AAROT on suggestions for courses and workshops in 2002. Second, the business reply envelopes used to cut costs might have appeared less personal to the respondents (Armstrong & Lusk, 1987; Blumberg, Fuller, & Hare, 1974; Dillman, 2000). Third, only recipients interested in this research topic may have replied (Ferber & Verdoorn, 1967). Finally, two current events highlighted in the news, the September 11 terrorist attack in the United States, and the Anthrax fear (biological agent found in mail packages) might have had a negative impact on potential respondents' willingness to participate in a survey.

Data Integrity

All 276 usable questionnaires were reviewed, verified and rechecked item-by-item against the already entered data for all 116 items by the principal investigator to ensure data integrity. An error rate of 0.29% was detected and these data entry errors were corrected.

Objective One

The first objective of this study was to describe respondents and their experiences with continuing professional education, accessibility to computers and the Internet, perceived computer experiences and knowledge, and perceptions of Internet-based continuing education.

Demographics Description of the Respondents

Demographic data was collected in part 4 of the survey (see Appendix B), which describes gender, age, education, place of residence, years of occupational therapy experience, primary work setting, and primary field of practice.

Distributions of gender, age, education, and place of residence.

The demographic characteristics of the respondents are shown in Table 3-1. The number of respondents (n) is not identical for each item because not all respondents completed each item. The results showed that the majority of the respondents were female (94%) and about 70% of the respondents were aged from 26 to 45. The majority of the respondents (85%) held a bachelor degree and over 9% of the respondents held a master's degree. Over three quarters (76%) of the respondents resided in Edmonton or Calgary and their suburbs (correspondents to questions number 20 <a> and <b>), about 10% resided in medium-sized cities (correspondents to <c> to <g>), and 14% resided in rural Alberta (correspondents to <h>).

Table 3-1

Demographic Characteristics of Respondents: Gender, Age, Education, and Place of Residence

Characteristic	% of the respondents
Gender (n = 276)	
Female	94.2
Male	5.8
Age (n = 274)	
25 and under	7.7
26 - 35	39.8
36 - 45	31.4
46 - 55	18.2
56 or above	2.9
Education (n = 276)	
Diploma	5.4
Bachelors degree	84.8
Masters degree	9.4
PhD	0.4
Place of residence (n = 276)	
Edmonton (and suburbs)	48.9
Calgary (and suburbs)	27.2
Red Deer	3.3
Grande Prairie	2.5
Lethbridge	1.8
Medicine Hat	1.8
Fort McMurray	0.4
Other	14.1

Note. The total number of usable surveys = 276

Gender distribution.

A Chi-square procedure was used to determine if the observed proportions of gender in the sample represented the population of Alberta (Glass & Hopkins, 1996; Norusis, 2000). Table 3-2 describes the distribution.

Table 3-2

Chi-square procedure for Gender Distribution (Alberta)

Gender	Distribution of respondents	
	Observed (Usable questionnaires)	Expected proportion (Obtain from AAROT)
Males	16	23
Females	260	253
Total	**276**	

The expected proportion of gender distribution was based on the data obtained from Alberta Association of Registered Occupational Therapists (AAROT). There was no significant difference between the observed and expected gender distribution ($\chi^2 = 2.324$, $df = 1$, $p = .127$). Thus, no weighting of the data was required for the remaining inferential statistical procedures.

According to the Canadian Association of Occupational Therapists (CAOT) Membership Statistics 2000 (CAOT, 2002b), 94% of their members were females and 6% were males (included full-time, part-time, full-time graduate student, retired, non-practising, and practising members outside of Canada).

A Chi-square procedure was used to determine if the observed proportions of gender in the sample represented the population of Canada (see Table 3-3).

Table 3-3

Chi-square procedure for Gender Distribution (Canada)

Gender	Distribution of respondents	
	Observed (Usable questionnaires)	**Expected proportion (Obtain from CAOT)**
Males	16	17
Females	260	259
Total	**276**	

The expected proportion of gender distribution was based on data obtained from Canadian Association of Occupational Therapists (CAOT, 2002b). Results showed that there was no significant difference between the observed and expected gender distribution ($\chi^2 = .063$, $df = 1$, $p = .802$).

Place of residence distribution.

Place of residence was taken from the mailing labels and manually categorized into eight groups (see Table 3-4) as listed in question 20 of the survey (see Appendix B).

Table 3-4

Chi-square procedure for Distribution of Place of Residence

Place of residence	Distribution of respondents	
	Observed (Usable questionnaires)	Expected (Categorized from source of AAROT)
Edmonton (and suburbs)	135	132
Calgary (and suburbs)	75	78
Fort McMurray	1	1
Grande Prairie	7	5
Lethbridge	5	5
Medicine Hat	5	5
Red Deer	9	6
Other	39	44
Total	**276**	

A Chi-square procedure was used to examine whether the observed proportions of the place of residence from the sample represented the population distribution. Results showed that there was no significant difference between the observed and expected place of residence distribution ($\chi^2 = 3.052$, $df = 7$, $p = .88$). Therefore, no weighting of the data was needed for the remaining inferential statistical analyses.

Distributions of years of occupational therapy experience, primary work setting, and primary field of practice.

The number of years of occupational therapy experience, primary work setting, and field of practice of the 276 respondents are provided in Table 3-5.

More than half (65%) of the respondents had 15 years or less experience in occupational therapy practice. Among the respondents, 47% worked in institutions (hospitals, long-term care facilities, and Rehabilitation Centres), about 49% worked in the community (community, schools, private practice, school / community), and 4% worked in colleges / universities, and a combination of institutions and community.

The largest proportion of respondents (29%) reported paediatrics as their primary field of practice, followed by 27% in physical disabilities (physical medicine), and 23% in geriatrics.

Table 3-5

Demographic Characteristics of Respondents: Years of Occupational Therapy Experience, Primary Work Setting, and Primary Field of Practice

Characteristic	% of the respondents
Years of occupational therapy experience (n = 276)	
5 and under	28.6
6 – 10	22.1
11 – 15	14.5
16 – 20	15.2
21 or more	19.6
Primary work setting (n = 268)	
Hospital	34.3
Community	30.2
School	14.6
Long-term care facility	10.1
Private	3.4
Rehabilitation Centre	2.6
College / University	2.2
Hospital / school	1.1
School / community	0.7
Hospital / school / long-term care facility / community	0.7
Primary field of practice (n = 263)	
Paediatric	29.3
Physical disabilities	27.4
Geriatric	22.8
Mental health	7.6
Administration	4.2
Academic	2.7
Hand therapy	2.3
Vocational rehabilitation	2.3
Others[a]	1.5

[a]Others include medical / legal consultation, and injury prevention / health promotion / disability management.

Continuing Professional Education

This section corresponds to part 1 of the survey questionnaire: Continuing education (see Appendix B). In this section, respondents' involvement in continuing professional education is examined, including their participation in continuing professional education courses during the past 12 months; length of time (round-trip) required to travel to the continuing professional education courses; their reasons for taking continuing professional education courses; their plans to take continuing professional education courses in the next 2 years and reasons if they do not plan to; the types of continuing professional education courses that most interest them; the usefulness of different delivery types to them; and the importance of different items and activities in continuing professional education to them.

Frequency, typical length, and average cost of continuing education during the past 12 months.

The respondents' participation in continuing professional education, including typical length, and average cost of attending each type of continuing professional education during the past 12 months is described in Table 3-6. Median value was used as the measurement of central tendency instead of the mean due to the presence of outliers that would skew the results. The extreme values reported by the respondents were not considered errors. Rather, they indicated the wide range of possible responses to the questions.

Table 3-6

Continuing Education: Frequency, Typical Length, and Average Cost During the Past 12 Months

Types of continuing education delivery	Number of times per year		Hour per event		Dollar per event	
	(n)	Median (min, max)	(n)	Median (min, max)	(n)	Median (min, max)
Conference	201	1.6 (1.0, 5.0)	203	14.0 (1.0, 80.0)	189	$280.00 ($6.00, $2200.00)
Presentation	184	3.0 (1.0, 70.0)	184	1.5 (.5, 35.0)	22	$87.50 ($2.50, $550.00)
Seminar (including workshops)	126	2.0 (1.0, 10.0)	125	7.0 (.5, 120.0)	74	$93.30 ($10.00, $2700.00)
Teleconference	54	1.0 (1.0, 7.0)	57	1.0 (.5, 8.0)	15	$10.00 ($9.00, $110.00)
Video conference / Telehealth	53	2.0 (1.0, 12.0)	54	1.0 (.5, 8.0)	6	$15.50 ($10.00, $50.00)
Internet	48	3.0 (1.0, 50.0)	48	1.0 (.5, 260.0)	10	$132.50 ($10.00, $925.00)
Home education	43	3.0 (1.0, 120.0)	40	2.8 (.5, 56.0)	9	$115.00 ($25.00, $530.00)
Correspondence course	12	1.1 (1.0, 2.0)	14	40.0 (1.5, 200.0)	14	$420.00 ($65.00, $500.00)

Note. The total number of usable surveys = 276

Conference was the most common type of continuing professional education engaged by the respondents in the past 12 months. Of the 276 respondents, 201 (73%) participated in at least one conference. The second most common type of continuing professional education was presentation; two-thirds of the respondents had attended presentations in the last year. The third most common delivery type was the seminar (including workshops), with 45.7% of respondents taking part during the past 12 months. There were 16% to 20% of respondents who stated that they participated in continuing professional education in the past 12 months via teleconference, Internet, home education, and video conference / telehealth. Extreme values occurred for the number of times respondents participated in continuing professional education in the 12 months period. For example, two respondents stated that they attended 50 and 70 presentations respectively in the past 12 months, one respondent reported attending 50 continuing professional education sessions through the Internet, and two respondents reported that they engaged in home education 52 and 120 times respectively in the past 12 months.

Extreme values also occurred for duration of continuing professional education. Two respondents reported a duration for an Internet and a correspondence course of 260 hours and 200 hours respectively; two respondents reported that their conferences lasted for 60 and 80 hours; two respondents reported that they had attended seminars (including workshops) for 52 and 120 hours respectively.

Extreme values for the full registration fees were as follows: two respondents reported the full registration fees for conferences as $955 and $2200 respectively; two respondents reported registration fees for Internet-based continuing professional

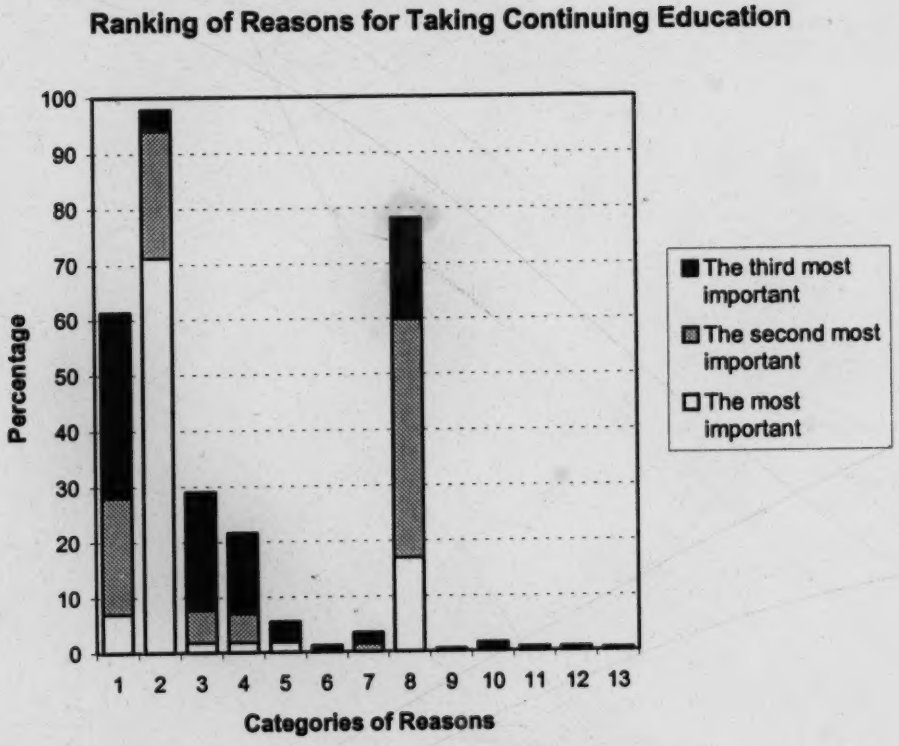
education of $800 and $925 respectively; and three respondents reported $800, $2000, and $2700 registration fees for seminars (including workshops).

Reasons for participating continuing professional education.

Respondents were asked to choose the top three reasons for participating continuing professional education from eight possible choices. Extra space was provided if respondents' reasons for taking continuing professional education were not included in the list. A summary of the reasons selected and suggested by the respondents for taking continuing professional education is shown in Figure 3-1. "Increase skills and knowledge" was ranked as reason top one or top two by 255 (94%) of respondents. "Maintain clinical competence" and "personal development" were ranked in the top three positions by 211 (78%) and 165 (61%) of respondents respectively. "Positive value of learning" was the fourth most endorsed reason.

Figure 3-1

Continuing Education: Reasons for Participating



Note.

- Number of respondents for the most and the second most important = 271
- Number of respondents for the third most important = 267
- Reasons 9 to 13 were provided by the respondents

The reasons for taking continuing education:

1 – For personal development
2 – To increase skills and knowledge
3 – Positive value of learning
4 – Desire to learn subject matter to teach others
5 – Wanting to advance in clinical position
6 – To increase salary or benefits at work
7 – A desire to do research
8 – To maintain clinical competence
9 – To increase my value to my employer
10 – To get the best results with clients by trying out new techniques
11 – To meet, develop, and maintain relationships with other people doing similar or related work
12 – Paid by employer
13 – To develop specialty practice

Two-year plan, typical length of time (round-trip) to travel to the continuing education courses, type of courses of most interest, and the most important items and activities in delivering continuing education.

The findings showed that 268 out of 275 (97.5%) respondents plan to take continuing professional education in the next 2 years. Some of the reasons provided by those seven respondents who did not plan to take any continuing professional education courses in the next 2 years were: (1) time constraints, (2) cost, and (3) cease to be actively working.

The average length of time required for respondents to travel to continuing professional education sites (round-trip) was more than 2 hours (SD = 1.41).

As depicted in Table 3-7, the data showed that about two-thirds of the respondents preferred non-credit courses. About 45% of the respondents ranked "availability of articles" and "availability of textbooks" as the most important attributes for their participating in continuing professional education. About 29% of the respondents ranked "feedback from the instructor" and "feedback on assignments" as the most important elements, and 29% of the respondents thought that "discussion with classmates" was the most important activity in continuing professional education.

Table 3-7

Continuing Education: Type of Courses of Most Interest, and the Most Important Items and Activities in Delivering Continuing Education

	% of the respondents
Typical travel time for continuing education (round-trip) (n = 262)	
Less than 30 minutes	10.7
30 minutes to less than 1 hour	26.3
1 hour to less than 2 hours	15.6
2 hours to less than 4 hours	17.2
4 hours or more	30.2
Types of continuing education courses of most interest to the respondents (n = 270)	
Non-credit courses on topics of interest	63.3
Continuing education credit course	21.1
University credit course	8.5
Not sure	6.7
None	0.4
Items and activities ranked as the most important to the respondents (n)	
Availability of articles (254)	31.5
Discussion with classmates (259)	29.0
Feedback from the instructor (258)	25.6
Availability of textbooks (254)	13.8
Feedback on assignments (242)	3.3

Perceived usefulness of different delivery types of continuing professional education.

Table 3-8 shows data on perceived usefulness of different delivery methods used in continuing professional education. Slightly over 90% of the respondents rated "conference / seminar" as "4" or "5" (very useful). The following delivery methods for continuing professional education were rated as "4" or "5" (very useful) by the respondents: "self-directed / self-study" (38%), "Internet-based course" (36%), and "teleconference / telehealth / videoconference" (35%). About 27% of the respondents rated "correspondence course" as "4" or "5" (very useful).

Table 3-8

Continuing Education: Perceived Usefulness of Different Delivery Types

Delivery Types of continuing education (n)	% of the respondents				
	Not at all useful 1	2	Somewhat useful 3	4	Very useful 5
Self-directed / self study (272)	7.4	12.5	42.6	22.1	15.4
Conference / seminar (274)	0	1.5	6.6	40.9	51.1
Correspondence course (259)	12.0	22.8	37.8	19.7	7.7
Internet-based course (253)	11.5	18.6	34.0	24.9	11.1
Teleconference / Telehealth / Video conference (264)	6.4	23.5	34.8	24.2	11.0

Computer

This section corresponds to part 2 of the survey questionnaire on computer use (see Appendix B). Accessibility to computers and the Internet both at home and at work, computer experiences, and reported computer knowledge for taking Internet-based courses are reported here.

Accessibility to computers and the Internet, and perceptions of computer knowledge.

Respondents' accessibility to computers and the Internet at home and at work, and perceptions of whether their computer knowledge is sufficient to take an Internet-based continuing professional education course are shown in Table 3-9. Close to 90% of the respondents had computers and Internet access at home and at work, but much fewer (slightly over 64%) of the respondents thought their computer knowledge was sufficient to take an Internet-based course.

Table 3-9

Computer: Accessibility to Computers and the Internet, and Perceptions of Computer Knowledge

	% of the respondents
At Home	
Access to a computer (n = 276)	89.1
Of those computers (n = 245), connect to Internet	89.4
Of those computers (n = 217), connect to high-speed Internet	47.5
If no computer at home (n = 28), plan to get one in the next 6 months	17.9
At Work	
Access to a computer (n = 276)	86.6
Of those computers (n = 239), connect to Internet	89.5
Of those computers (n = 192), connect to high-speed Internet	68.8
If no computer at work (n = 35), plan to get one in the next 6 months	2.9
Computer knowledge is sufficient to take an Internet-based distance education course (n = 275)	
Yes	64.4
No[a]	18.2
Not sure	17.5

[a]No: the reasons for insufficient computer knowledge were lacking Internet / E-mail knowledge (n = 15), lacking basic computer knowledge (n = 30), lacking computer access (n = 4), and lacking interest in computers (n = 1)..

Reported computer experiences.

Respondents were asked to indicate their experiences with computers on a 5-point scale (Table 3-10). About 60% of respondents indicated being "4" or "5" (very experienced) with *e-mail* and *word processing*, 45% with *World Wide Web*, 40% with *search engines* and 10% with *spreadsheets*.

Table 3-10

Computer: Reported Computer Experiences

Computer experience (n)	% of the respondents				
	Not at all experienced 1	2	Somewhat experienced 3	4	Very experienced 5
Word processing (276)	6.5	6.5	27.9	37.0	22.1
Spreadsheets (275)	38.5	26.9	24.7	6.2	3.6
World Wide Web (274)	6.6	13.9	34.7	35.8	9.1
E-mail (276)	5.4	3.6	30.1	40.6	20.3
Search engines (276)	11.6	17.0	30.8	31.5	9.1

Internet-based Continuing Professional Education

This section corresponds to part 3 of the survey questionnaire: Internet-based distance education (see Appendix B). The results from the Internet-based distance education part of the questionnaire are described as below.

Respondents' perspectives on Internet-based continuing professional education: awareness, and type of most interest.

Approximately 40% of respondents were aware of Internet-based courses in occupational therapy (see Table 3-11). Among those respondents who were aware of the courses, eight of them (almost 8%) had taken Internet-based courses. However, when considering all respondents (n = 276), fewer than 3% had taken Internet-based courses. In descending order, the types of Internet-based courses that most interested respondents were: *non-credit courses on topics of interest* (slightly over 40%); *continuing education credit course* (nearly 30%); and *university credit course* (about 15%).

Table 3-11

Internet-based Courses: Awareness, and Type of Most Interest

	% of the respondents
Aware of Internet-based occupational therapy courses (n = 275)	38.2
Previously taken an Internet-based course (n = 104)	7.7
Types of Internet-based distance education courses of most interest (n= 266)	
Non-credit courses on topics of interest	40.6
Continuing education credit course	29.7
University credit course	14.7
Not sure	10.9
None	4.1

Objective Two: Factors that May be Associated with Respondents' Perceived Likelihood of Taking Internet-Based Continuing Professional Education

This objective examined respondents' *degree of interest* in, and perceived *likelihood* of taking continuing education over the Internet. It also examined factors that may be associated with respondents' perceived likelihood of taking Internet-based continuing education. These factors were: degree of interest; gender; place of residence (three categories); primary work setting (hospital-based and non-hospital-based settings); and respondents' reported computer knowledge.

Reported Degree of Interest and Perceived Likelihood of Taking Continuing Professional Education Over the Internet

Table 3-12 shows that when considering taking Internet-based courses on topics of interest and if cost, length of the courses, and time are not a concern, approximately 55% of the respondents ranked their *degree of interest* as "4" or "5" (very interested). Similarly, about 52% of the respondents rated their perceived *likelihood* of taking continuing education over the Internet as "61 – 80%" or "81 – 100%".

Table 3-12

Internet-based Courses: Degree of Interest, and Perceived Likelihood of Taking Internet-based Continuing Education

	% of the respondents				
Degree of interest in taking Internet-based courses (n = 274)	**Not at all interested 1**	**2**	**Somewhat interested 3**	**4**	**Very interested 5**
	4.7	9.1	31.8	28.1	26.3
Likelihood of taking Internet-based courses (n = 272)	**0 – 20%**	**21 – 40%**	**41 – 60%**	**61 – 80%**	**81 – 100%**
	11.4	13.6	23.5	27.6	23.9

Relationship between degree of interest and perceived likelihood.

Pearson Product Moment Correlation revealed a statistically significant and strong positive correlation between *degree of interest* in and perceived *likelihood* of taking continuing education over the Internet ($r = .718$, $p < .001$, two-tailed).

Is There a Gender Difference in Perceived Likelihood of Taking Continuing Professional Education Over the Internet?

Independent-samples t-test showed that there was a statistically significant difference between male and female respondents in their stated likelihood of taking Internet-based courses (see Table 3-13) that more male respondents (about 88%) rated their likelihood as "61 – 80%" or "81 – 100%" compared to just under 50% of female respondents.

Table 3-13

Is There a Gender Difference in Perceived Likelihood of Taking Continuing Professional Education Over the Internet?

Independent-samples t-test	Likelihood	
	t-value	*p*-value
Gender	3.094*	.006

Gender	(n)	Likelihood Mean[a]	Likelihood Standard Deviation	Likelihood 95% Confidence Interval	
				Lower Limit	Upper Limit
Male	16	4.19	1.05	3.63	4.75
Female	256	3.34	1.30	3.18	3.50

[a]1 = 0 – 20%; 2 = 21 – 40%; 3 = 41 – 60%; 4 = 61 – 80%; and 5 = 81 – 100%
* Significant at 0.01 level. Independent-samples t-test

Are There Differences Between Categories of Place of Residence in Perceived Likelihood of Taking Continuing Professional Education Over the Internet?

One-way analysis of variance (ANOVA) was used to examine if respondents from different places of residence differed in their perceived likelihood of taking Internet-based continuing education. The place of residence was categorized into three groups: major cites (Edmonton, Calgary, and outlying communities), medium-sized cites with population over 35,000 (Fort McMurray, Grande Prairie, Lethbridge, Medicine Hat, and Red Deer), and rural areas of Alberta province according to the 2001 Official Population List by Alberta (Alberta, Canada – A Wealth of Opportunity, 2001) (see Table 3-14).

The results did not show any statistically significant differences between respondents who resided in major cities, medium-sized cities, or rural areas of Alberta in their perceived likelihood of taking Internet-based continuing education (power of .24, and effect size of .001).

Table 3-14

Are There Differences Between Categories of Place of Residence in Perceived Likelihood of Taking Continuing Professional Education Over the Internet?

One-way ANOVA	Likelihood		
	F-value	(df)	*p*-value
Categories of place of residence	1.087	(2, 269)	.339

Categories of place of residence	(n)	Likelihood Mean[a]	Likelihood Standard Deviation	Likelihood 95% Confidence Interval	
				Lower Limit	Upper Limit
Major cities	207	3.36	1.24	3.19	3.53
Medium-sized cities	27	3.22	1.50	2.63	3.82
Rural areas	38	3.66	1.42	3.19	4.12

[a]1 = 0 – 20%; 2 = 21 – 40%; 3 = 41 – 60%; 4 = 61 – 80%; and 5 = 81 – 100%

Is There a Difference Between Hospital-based and Non-hospital-based Occupational Therapists in Perceived Likelihood of Taking Continuing Professional Education Over the Internet?

The primary work settings were divided into two groups in order to compare hospital-based and non-hospital-based occupational therapists' perceived likelihood of taking Internet-based courses (see Table 3-15). Independent-samples t-test did not show any statistically significant difference between hospital-based and non-hospital-based occupational therapists' perceived likelihood of taking continuing education courses over the Internet (power = .231, and effect size = .002).

Table 3-15

Is There a Difference Between Hospital-based and Non-hospital-based Occupational Therapists in Perceived Likelihood of Taking Continuing Professional Education Over the Internet?

Independent-samples t-test	Likelihood	
	t-value	*p*-value
Primary work setting	-1.226	.221

Primary work setting	(n)	Mean[a]	Likelihood Standard Deviation	95% Confidence Interval	
				Lower Limit	Upper Limit
Hospital-based	97	3.26	1.36	2.98	3.53
Non-hospital-based	167	3.46	1.26	3.27	3.65

[a]1 = 0 – 20%; 2 = 21 – 40%; 3 = 41 – 60%; 4 = 61 – 80%; and 5 = 81 – 100%

Are There Differences Between Reported Computer Knowledge in Perceived Likelihood of Taking Continuing Professional Education Over the Internet?

One-way analysis of variance (ANOVA) was used to determine whether there were differences between categories of computer knowledge in respondents' perceived likelihood of taking Internet-based courses (see Table 3-16).

Table 3-16

Are There Differences Between Reported Computer Knowledge in Perceived Likelihood of Taking Continuing Professional Education Over the Internet?

One-way ANOVA		Likelihood	
	F-value	(df)	*p*-value
Computer Knowledge	11.872*	(2, 268)	< .001

Computer Knowledge	(n)	Likelihood Mean[a]	Likelihood Standard Deviation	Likelihood 95% Confidence Interval	
				Lower Limit	Upper Limit
Sufficient	174	3.63	1.18	3.45	3.80
Not sufficient	50	2.66	1.42	2.26	3.06
Not sure	47	3.28	1.31	2.89	3.66

[a]1 = 0 – 20%; 2 = 21 – 40%; 3 = 41 – 60%; 4 = 61 – 80%; and 5 = 81 – 100%
* Significant at 0.01 level. One-way analysis of variance (ANOVA).

The results showed there were statistically significant differences between respondents' perceived computer knowledge (*sufficient*, *not sufficient*, and *not sure*) in their perceived likelihood of taking Internet-based courses.

Multiple comparisons (Tukey Post Hoc Tests) indicated that there were significantly more respondents who considered their computer knowledge "sufficient" who stated they were likely ("61 – 80%" or "81 –100%") to take Internet-based courses than those who considered their computer knowledge "not sufficient" ($p < .001$). In addition, there were significantly more respondents who considered their computer knowledge "not sure" who indicated that they were likely ("61 – 80%" or "81 –100%") to take Internet-based courses than those who thought their computer knowledge "not sufficient" ($p = .041$).

Are There Differences Between Categories of Place of Residence in Attending Three Approaches of Continuing Professional Education?

Repeated Measures were used to examine if there were differences between respondents living in major cities, medium-sized cities, and rural areas in attending three approaches of continuing education. Delivery types of continuing education (see Table 3-6, page 44) were grouped into three approaches: *home study* (correspondence course and home education), face-to-face (conference, presentation, and seminar including workshops), and technology (Internet, teleconference, video conference / telehealth). The results showed that the assumption of *sphericity was met* using the Mauchly's test ($p = .999$). When examining if respondents participated more frequently in one approach of continuing professional education (total of three approaches after grouping) than the

other (Within Subjects Effects), there was a statistically significant effect of the above three approaches of continuing professional education ($F(2, 518) = 9.771, p < .001$). But there was no statistically significant interaction effect between factor of "three categories of place of residence" and "three delivery approaches of continuing education" with $F(4, 518) = 1.134, p = .339$ (power of .358). In other words, Albertans residing in the above places of residence did not attend three approaches of continuing professional education differently. For the testing of the Between Subjects Effects, there was no significant between-subjects factor effect ($F(1, 259) = .880, p = .416$), which means overall respondents did not attend the above three approaches of continuing education differently based on the three categories of place of residence (major cities, medium cities, or rural areas of Alberta).

Objective Three: Perceived Challenges, Suggested Topics and Comments for Delivering Internet-Based Continuing Professional Education

This objective examines the challenges identified by respondents associated with Internet-based continuing education. As the literature has reported that lack of appropriate content can be a barrier (Banister Research & Consulting Inc., 1999; Harvey, 1983), respondents in this study were asked to suggest topics in which they were interested. Respondents were also asked to provide their comments, concerns or suggestions related to Internet-based continuing education.

Perceived Challenges

Respondents were asked to rate the eight potential barriers for delivering Internet-based continuing education (see Table 3-17). The following summarizes, in descending order, respondents' rating on the barriers when "4" and "5" (very much a barrier) were pooled: *lack of personal time* (58%); *lack of employers' subsidization* (49%); *lack of suitable topics* (36%); *cost* (32%); *lack of equipment* (17%); *lack of computer training*, *lack of Internet experience*, and *failure to accommodate appropriate learning styles* (15%).

Table 3-17

Internet-based Courses: Perceived Barriers

Perceived Barriers (n)	% of the respondents				
	Not at all a barrier		Somewhat of a barrier		Very much a barrier
	1	2	3	4	5
Lack of computer training (274)	31.8	25.9	27.4	4.4	10.6
Failure to accommodate appropriate learning styles (257)	20.2	27.2	37.4	10.9	4.3
Lack of Internet experience (273)	33.3	25.3	26.4	5.5	9.5
Cost (254)	16.9	19.3	31.9	18.9	13.0
Lack of suitable topics for this type of delivery (244)	9.8	17.2	36.9	21.7	14.3
Lack of employers' subsidization (264)	16.7	12.1	22.7	20.8	27.7
Lack of personal time (274)	5.5	8.0	28.8	25.9	31.8
Lack of equipment (271)	53.5	18.5	10.7	8.5	8.9

Topics and Comments Suggested by the Respondents

This section summarizes six occupational therapy-related Internet-based continuing education topics most frequently suggested by the respondents; and their six most frequently cited comments, concerns, and suggestions that related to Internet-based continuing education (see Appendix B).

Six occupational therapy-related Internet-based continuing professional education topics most frequently suggested by the respondents.

The six topics most frequently suggested by respondents are summarized in Table 3-18. As specified in the survey question, a maximum of 3 topics suggested by each respondent were accepted in this analysis to ensure fairness. As a result, there were 594 topics suggested from 221 respondents. All topics collected from this open-ended question were manually classified into categories by the principal investigator.

Table 3-18

Internet-based Courses: Six Occupational Therapy-Related Internet-based Continuing Professional Education Topics Most Frequently Suggested by the Respondents

Occupational therapy related topics	Number of respondents	%
Paediatrics[a] assessments and treatments	66	11.1
Specific medical conditions[b]	56	9.4
Specific treatment techniques[c]	45	7.6
Seating / positioning, and compression therapy[d]	39	6.6
Program evaluation / outcome measures[e]	35	5.9
Cognitive and perceptual assessments and treatments[f]	35	5.9

[a]Paediatrics assessments and treatments include fine motor / gross motor; hand writing, play, and social skills; infant, early intervention and school-based.

[b]Specific medical conditions include assessment and treatment of: Parkinson's disease; Dementia; Alzheimer's disease; Mood disorders; alcoholism and drug dependence; autism; Asperger's syndrome; rheumatoid and osteo-arthritis; multiple sclerosis; Amyotrophic Lateral Sclerosis; brain injury; spinal cord injury; cardiovascular diseases; learning disorders; attention deficit disorders; burns; visual impairments; and pain.

[c]Specific treatment techniques include Sensory Integration; Bobath approach (NDT); Sensory Profile; sensory based courses; manual physical treatment techniques; and sensory modulation.

[d]Seating / positioning, and compression therapy included wound care assessment / intervention; oedema management; pressure relief; and contractures management.

[e]Program evaluation / outcome measures: in mental health; long-term care; community; physical medicine; and school-based setting.

[f]Cognitive and perceptual assessments and treatments included standardized assessments in paediatrics, adult, and geriatric populations.

Six comments, concerns, and suggestions related to Internet-based continuing professional education most frequently cited by the respondents.

There were total of 236 comments, concerns, and suggestions related to Internet-based continuing education. The top six comments, concerns, and suggestions are summarized in Table 3-19. The number one concern reported by the respondents was the *limited or lack of interaction / discussion with other learners and instructors* when taking Internet-based courses.

Table 3-19

Internet-based Courses: Six Comments, Concerns, and Suggestions Related to Internet-based Continuing Professional Education Most Frequently Cited by the Respondents

Comments, concerns, and suggestions	Number of respondents	%
Limited or lack of interaction / discussion[a]	34	14.4
Suggestions on Internet-based courses[b]	32	13.6
Learning styles[c]	22	9.3
Time as a barrier[d]	20	8.5
Cost as a barrier[e]	17	7.2
The "art" of occupational therapy[f]	17	7.2

[a]Limited or lack of interaction / discussion opportunities with other learners and instructors if taking the Internet-based continuing education.

[b]Suggestions on Internet-based courses by the respondents. They suggested different ways of improving Internet-based courses such as:

1. Orientation
2. Format and approach of delivery the courses
3. Interactive (chat room and discussion group)
4. Classroom work
5. Expectations on assignments
6. Requirement on feedback
7. Advertisement on the courses

[c]Learning styles - Respondents viewed Internet-based courses as very solitary, and that one needs to be very disciplined and self-motivated. This is not a learning style for everyone.

[d]Time as a barrier: lack of both personal and work time to participate in the Internet-based courses.

[e]Cost as a barrier: prices have to be reasonable and accessible for Internet-based courses.

[f]The "art" of occupational therapy – Respondents believed that the "art" of the occupational therapy courses involve "hands-on" and practical components. They doubted that if Internet-based courses can offer this kind of learning opportunity.

Chapter 4

Discussion

Overview of the Study

There were three objectives for this study. The first was to describe Alberta occupational therapists' participation in and reasons for pursuing continuing professional education. This objective included an examination of various ways in which continuing professional education can be delivered. The second objective was to examine Alberta occupational therapists' perceived likelihood (under ideal conditions) of taking continuing professional education via the Internet. The Internet as a method of delivering continuing professional education was the main focus of this study. Alberta occupational therapists' perceived *likelihood* of taking Internet-based continuing education (under ideal conditions) was examined in relation to *degree of interest*, *gender*, *place of residence* (in categories), *primary work setting* (hospital-based and non-hospital-based settings), and perceived *computer knowledge*. Specific research questions were posed to examine the factors and expected responses were formulated. This was an exploratory / descriptive study. As a result, formal hypotheses were not used. The third objective of this study was to examine challenges associated with Internet-based continuing education as perceived by Alberta occupational therapists.

A mail survey questionnaire was developed specifically for this study. The survey questionnaire was divided into four parts: *continuing education*, *computer*, *Internet-based distance education*, and *demographics*. Survey packages were sent to 800

(or 80.4%) randomly selected active members of the Alberta Association of Registered Occupational Therapists (AAROT), who met the inclusion criteria, with one follow-up letter to remind recipients to return the survey (Babbie, 1990; Dillman, 2000; French, Reynolds & Swain, 2001). Of the 792 deliverable survey packages, 281 were returned. The response rate of 35.5% was considered to be well within the acceptable range of response rates for this type of survey (Armstrong & Lusk, 1987; O'Rourke, 1999; Wilson, 1999).

Demographics of the Respondents

The gender distribution among the respondents (94% females and 6% males) reflected the gender distribution of Alberta occupational therapists, as well as that of male and female occupational therapists across Canada.

Almost 85% had Bachelors' professional entry-level degrees, and 71% of the respondents were aged 26 to 45. The age distribution is comparable to that of members of the Canadian Association of Occupational Therapists (CAOT) which reports that about 73% its current members are aged 25 to 44 (CAOT, 2002b). The findings indicated that over 75% of the respondents resided in the major cities of Edmonton and Calgary, or in suburbs nearby. Place of residence (three categories) and primary work setting (hospital-based and non-hospital-based settings) will be discussed later in relation to the second objective of the study (page 81 – 83).

Alberta Occupational Therapists and Continuing Professional Education

Respondents were asked several questions related to their experience with continuing professional education in general. By far the most common forms of continuing professional education pursued by respondents in the past year were the traditional face-to-face formats. These were conferences, presentations and seminars (including workshops). Of the continuing professional education delivered via technology, a similar number of respondents used teleconference, videoconference, and the Internet (54, 53, and 48 respectively); the Internet was used on a more frequent basis by the respondents (median = 3 times a year). Typically, sessions using traditional face-to-face formats were longer than the one-hour median of those using technology. The relative short time sessions for using technology was possibly due to connection fees (telecommunication costs). The extreme values in the data were not considered errors. Rather, they may indicate the wide range of possible responses to the questions, and the median was an effective way to describe the central tendency of the data. With regard to some extreme values of frequencies of *presentation* (70 times *in the past 12 months*), *Internet* (50 times *in the past 12 months*), and *home education* (120 times *in the past 12 months*), it is possible that these terms were not clear to some respondents. For example, "how frequently you have attended *the Internet* in the past 12 months" may have been interpreted by some respondents as the actual number of times that he or she has logged onto the Website regardless of whether or not the individual "attended" a session. It was not clarified to respondents whether "checking e-mail" counts as attending a session. The definition of *Internet* use here, for the purpose of the survey, was to engage in discussion

groups on-line related to occupational therapy, to read journals on-line, or to attend Internet-based continuing education.

Although continuing competency was not the focus of the study, it was important to examine respondents' perceived benefits or reasons for pursuing continuing professional education. According to the respondents, the most important reasons for taking continuing professional education can be summarized as: (1) to increase skills and knowledge, (2) to maintain clinical competence, and (3) for personal development. It appears that continuing professional education is linked to clinical competence as approximately 78% of the respondents ranked "maintaining clinical competence" in each of the top three most important reasons. These responses were consistent with what the literature reported. Continuing professional education promotes continuing competence in clinical practice, and also enhances professional and personal development (Abreu & Blount, 1993; CAOT, 1996b; Dickerson & Wittman, 1999; Strickland, 1993).

Respondents expressed a preference for *non-credit courses*. Reasons this might be the case could be that courses for credit tend to be more expensive than non-credit courses. Courses for credit are also less accessible because if they are affiliated with an education institution, admission criteria need to be met and the application process tends to be more complicated. This was mentioned by a few respondents in the survey. However, educational institutional enrolment may increase in the future, given that all entry-level occupational therapy programs will be at the professional Master's degree in Canada by 2010 and in the United States by 2006 (CAOT, 2002a). Bridging programs or courses may become available to allow currently practising occupational therapists to take courses for credit towards a Master's degree.

The traditional face-to-face format, i.e. conference or seminar, was the preferred delivery method for continuing professional education of 92% of the respondents. Possibly respondents chose face-to-face formats as the most useful because these formats are most familiar. Banister Research & Consulting Inc. (1999) reported similar results: about 98% of their respondents rated Instructor-based program and 50% rated self-paced and self-study as "somewhat important" to "very important" based on a 4-point scale. Although more Internet-based graduate level continuing education courses are becoming available, Internet-based course delivery in occupational therapy is still in an early stage of development. More than one-third (38.2%) of respondents were aware of the existence of Internet-based occupational therapy courses, but only eight of them had ever taken a course over the Internet. It is possible that respondents were not sufficiently experienced with Internet-based courses to give an informed evaluation of their usefulness at this time. Clearly, this might bias the respondents' perceived usefulness in favour of the more familiar (face-to-face formats).

Alberta Occupational Therapists' Access to and Experiences with Computers and the Internet

In this study, accessibility to computers at home (89%) and at work (89%) with Internet access was higher than the national statistics reported by CAOT (CAOT, 2002b). CAOT (2002b) reported that 75% of CAOT members have access to the Internet at home and 61% at work. Until now, statistics for Alberta occupational therapists were not available. In this study, more Alberta occupational therapists had Internet access (either at home or at work) compared to British Columbia therapists (86%) (Stanton, 2001).

This may be partly explained by the popularity of Internet use in Alberta, as evidenced by the fact that for two consecutive years, Alberta had the highest household Internet use in Canada (Statistics Canada, 2001a). This also corresponds to the same report that Western Canada had the most high-speed Internet access in 1999. Another explanation could be that the data in this study were collected two or three years after the other studies, computer accessibility and Internet availability has increased within that period of time. The third explanation could be that respondents who are familiar with computers and the Internet might tend to complete and return the questionnaires. More Alberta occupational therapists had high-speed Internet access at home (47.5%) compared to the national average of 12% (April, 2000).

The findings showed that respondents were more familiar with *word processing* and *e-mail*, followed by *World Wide Web*, *search en*gines, and *spreadsheets*. This could be due to the fact that since the 1990's, computers and Internet access have become increasingly available in universities allowing more people to gain familiarity with these common applications. Perceived computer knowledge for taking Internet-based continuing professional education will be discussed later in this chapter (page 83).

Interest and Perceived Likelihood of Taking Continuing Professional Education Over the Internet

The second objective of this study was to examine respondents' perceived level of interest, and perceived likelihood of taking continuing professional education over the Internet under ideal conditions.

About 55% of Alberta occupational therapists rated their degree of interest (under ideal conditions) as "4" or "5" (very interested) in taking Internet-based continuing education. This figure of 55% was higher than in British Columbia (14%) (Stanton, 2001) and similar to the study in the United States (52.0%) (Simons, 1999). Differences in sampling methods may also partly explain the differences in results between this study and the study conducted by Stanton (2001). This study used a systematic random sample that included all active members of AAROT to ensure every active member had an equal chance of being selected. The study conducted in British Columbia used a convenience sample through fax (Stanton, 2001); this means that therapists who did not have access to a fax machine were not selected. Another explanation could be that Alberta had the highest proportion of Internet connections in Canada. This may explain why respondents in this study were more interested than those in British Columbia in taking continuing education via the Internet. A final explanation for the higher number of Alberta respondents expressing interest in taking continuing education on the Internet could be due to difference in the way the questions were asked. According to Stanton (2001), choices were provided such as Web-based courses only, and a combination of face-to-face and Web-based learning; of the 80% "who chose web-only, or web and face-to-face

learning" (p. 103), 13.9% preferred web-only courses. In other words, a combination of "web and face-to-face" learning was provided as one of the choices for recipients. However, in the present study, respondents were simply asked: "what is your degree of interest in taking a continuing education course on the Internet"?

The findings that almost 52% of the respondents perceived a high likelihood "61 - 80%" or "81 - 100%" (under ideal conditions) of taking Internet-based continuing education courses has not previously been reported in the literature.

From the data collected for both *degree of interest* and perceived *likelihood*, it could be stated that more than half of the Alberta occupational therapists were interested and stated that they were "61 - 80%" or "81 - 100%" likely to take Internet-based continuing education under ideal conditions.

Factors that May be Associated with Respondents' Perceived Likelihood of Taking Continuing Professional Education Over the Internet

This study examined factors that may be associated with respondents' perceived likelihood of taking Internet-based continuing education under ideal conditions. Degree of interest and perceived likelihood are highly correlated ($r = .718$). Further research needs to be done to examine if degree of interest and perceived likelihood are examining similar concepts. Perceived likelihood was examined in relation to the following factors: gender; place of residence (three categories); primary working setting (hospital-based and non-hospital-based); and respondents' reported computer knowledge.

Gender

With regard to *gender*, this study showed that more male respondents (88%) rated themselves as "61 – 80%" or "81 –100%" likely to take Internet-based continuing education courses compared to female respondents (50%). These results are consistent with Statistics Canada (2001b) results.

Place of Residence

Place of residence was divided into three categories and was examined in relation to respondents' preferences for course delivery methods, and perceived likelihood of taking continuing education over the Internet under ideal conditions. Geographical barriers to continuing professional education have been identified previously by occupational therapists (Dickerson & Wittman, 1999; Harvey, 1983; Robertson, 1986). Therefore, it was expected that respondents who lived in rural areas of Alberta would be more inclined to use technology (Internet, teleconference, and video conference / telehealth) when pursuing continuing professional education due to the fact that most traditional conference / seminar / workshop are provided in major cities and would require rural based occupational therapists to travel. However, there was no statistically significant difference between respondents who resided in major cities (Edmonton, Calgary and outlying communities) and those who resided in rural areas of Alberta in attending different delivery approaches (home study, face-to-face, and technology) for continuing professional education. That is, geography was identified as a barrier by the respondents in major cities as well as by the respondents in rural areas. It is possible that

under time constraints, travel becomes an issue even when technology is used, especially if the learner has to travel to the location of the technology.

It was expected that occupational therapists residing in the rural areas of Alberta would be more interested and more would express likelihood of taking Internet-based continuing education courses than those who resided in Edmonton, Calgary and the outlying communities due to the geographical barriers. However, there was no statistically significant difference relative to the three categories of place of residence in respondents' perceived likelihood of taking continuing professional education over the Internet. One explanation could be that the content of interest for continuing professional education courses is highly specific to the therapist's field of practice. In other words, no matter where Alberta occupational therapists resided, major cities or rural areas, they would still need to travel to other cities across Canada or even out of the country where specific continuing professional education courses are being offered. Even local travel could be a barrier. This may explain the findings by the Banister Research & Consulting Inc. (1999) that, with almost 88% of Alberta occupational therapist-respondents working in major cities (Edmonton, Calgary, and the outlying communities), nearly 43% of them had to travel to another city for continuing professional education, and approximately 74% of all respondents felt frustrated by the need to travel.

Primary Work Setting

It was anticipated that respondents who work in hospital settings might have more opportunities to attend continuing professional education organized by their hospitals versus those who work in non-hospital-based settings. Therefore, it was expected that more non-hospital-based respondents would state that they were likely to take Internet-based courses than those who were hospital-based therapists. This factor has not been examined in the previous studies. However, the results of the present study showed that there was no statistically significant difference between hospital-based and non-hospital-based Alberta occupational therapists in their perceived likelihood of taking an Internet-based course. The over-riding professional development choice criterion for occupational therapists whether hospital-based or non-hospital-based may be course subject or content specific. Also respondents may not perceive Internet as a useful tool for delivering continuing professional education.

Perceived Computer Knowledge

The information of reported computer knowledge and respondents' perceived likelihood of taking Internet-based courses has not been examined in the literature. The results of the present study indicated that respondents who thought their computer knowledge was "sufficient" were "61 – 80%" or "81 – 100%" likely to take Internet-based courses compared to those who thought that their computer knowledge was "not sufficient". This is consistent with Simons (1999) who found that occupational therapists who had more computer experiences stated they were more interested in taking computer-based post-professional occupational therapy programs.

In their comments, some respondents indicated concerns about whether their computer knowledge was sufficient enough to take Internet-based courses, as they did not know what computer knowledge was required for taking those courses. This concern could be solved by clear, specific, and readily available course requirements and guidelines for online students (Anderson, 1998).

Perceived Challenges with Internet-based Continuing Professional Education

Respondents rated the following barriers in descending order of importance: *lack of personal time*, followed by *lack of employers' subsidization*, *lack of suitable topics*, *cost*, *lack of equipment*, *failure to accommodate appropriate learning styles*, *lack of computer training*, and *lack of Internet experience*.

The present study not only confirmed that *personal time* is a barrier to professional continuing and graduate-level education courses in occupational therapy (Dickerson & Wittman, 1999; Harvey, 1983; Robertson, 1986; Simons, 1999) but also identified that personal time is a barrier for Internet-based continuing education. This may be particularly important for organizations which plan continuing professional education for female-dominant professions such as occupational therapy, in which over 90% are females. From the data, it appears that the largest proportion of respondents were interested in short duration non-credit courses (slightly over 40%). This may be due to the lack of personal time for continuing education. Internet technology may not be able to solve the fundamental problem of lack of personal time.

The present study confirmed *lack of suitable topics* as a barrier to continuing professional education (Banister Research & Consulting Inc., 1999; Wood & Madill, 1985) and also as a barrier to Internet-based continuing education. Almost 40% of the respondents were aware of occupational therapy Internet-based courses, however, it does not tell us if they were aware of all the Internet-based courses offerings that may be available.

Costs have also been cited as a barrier to continuing professional development (Harvey, 1983; Robertson, 1986; Simons, 1999; Wood & Madill, 1985). In their comments, respondents identified the importance of reasonable cost for taking Internet-based continuing education, especially for extended periods of Internet connection time. High tuition fees for online courses have been a concern that would be worth further investigation (Charp, 1998). For instance, the University of Alberta offers a graduate-level course "Conducting Rehabilitation Research" both in the traditional classroom setting and via the Internet. Tuition was $456.24 to take the course in the classroom and $1170.00 to take the course over the Internet (L. Liu, personal communication, February 14, 2002). Despite the higher cost, the expectation was that the advantages of taking a course delivered through the Internet would address geographical barriers and provides a flexible schedule, which would outweigh the cost barrier. However, we do not know if the learners perceive these advantages.

Many respondents commented on the *accessibility to equipment* including computers. They pointed out that it was not uncommon to have one computer shared by many colleagues at work, and also to share one computer within a household. As a result, the presence of a computer may not mean immediate or timely access for the

learners. Nemec, McNamara and McCarthy (1998) reaffirmed that overcoming resource barriers such as the accessibility to equipment was important to online courses. In addition, availability and accessibility of technical support personnel is very important for online students. Eldredge et al. (1999) recognized the need for technological support for students when computers were involved in distance education. Similarly, White (2000) affirmed the necessity of technical support for students taking online courses; as a result, Grant MacEwan Community College has piloted and evaluated an online technical help desk. Moreover, providing instructions on how to download software for accessing Internet-based programs and for contacting a technical support person when problems arise is recommended (Eldredge et al., 1999). Munkittrick (2000) suggested that sufficient hardware and software resources must be accessible to make online courses and course components possible. These hardware and software concerns may be reduced by providing textual material, not requiring too much online work, and allowing flexibility by limiting synchronous exercises.

Respondents were also concerned that the *learning style* for taking a course over Internet would not match their preferred learning style. Over 90% of respondents rated *conference / seminar* (face-to-face approaches) as "4" or "5" (very useful) for a method of continuing professional education delivery. Students might have different learning styles, resulting in primarily auditory, visual or sensory learners (Gilbride & Stensrud, 1999). Short (2000) suggested that "whether the course is taught online or in a traditional format, students benefit from a variety of learning activities and presentations" (p.60).

With regard to *lack of computer training*, some respondents stated they would make an effort to learn how to operate the computer if they ever decided to enrol in an

Internet-based course. Short (2000) also suggested that students take some extra computer courses before they enrolled in the online distance education. On the other hand, if an Internet-based course required a lot of computer experience, it may discourage learners from enrolling in the course. In other words, if learners needed to take extra computer courses before taking the Internet-based course, they may hesitate to sign up for the Internet-based course.

The present study provided findings that *lack of employers' subsidization* and *lack of Internet experience* are reported by respondents as barriers to taking Internet-based continuing education. These challenges have not been previously reported in the literature. The findings of the present study indicated that approximately 90% of respondents had computers at home, and among these, about 90% had an Internet connection. Even though slightly over 64% of the respondents believed their computer knowledge was *sufficient* for taking Internet-based courses, fewer respondents (about 52%) stated that they were likely ("61 – 80%" or "81 – 100%") to take Internet-based courses. This might be due to limited employers' subsidization. With regard to the *lack of Internet experience*, some respondents mentioned that they would learn how to "surf the net" on their own initiative before they took an Internet-based course. Others suggested that at the beginning of an Internet-based course, the instructor should provide an orientation session on how to get connected, and where to get help through both face-to-face interaction and by using the web. A Student Manual on Web-based courses that included all orientation information such as issues related to computer, online library and frequently asked questions was recommended by Short (2000).

Topics Suggested

Lack of suitable topics has been identified by occupational therapists in previous studies as a barrier to continuing professional education (Banister Research & Consulting Inc., 1999; Harvey, 1983; Wood & Madill, 1985). This study confirmed this finding. Hence, respondents were asked to suggest topics that they would be most likely to take for continuing education over the Internet.

Almost 80% of the respondents are employed in the three most reported primary fields of practice (paediatrics, physical disabilities and geriatrics). The six occupational therapy-related Internet-based continuing education topics most frequently suggested by the respondents in descending order of frequency were *paediatrics assessments and treatments* (related to paediatrics), *specific treatment techniques* (mostly related to paediatrics, stroke rehabilitation, and geriatrics), *seating / positioning, and compression therapy* (related to geriatrics), and cognitive and perceptual assessments and treatments (mostly related to paediatrics, stroke rehabilitation, and geriatrics).

Topics of interest relating to *specific medical conditions* cover a wide range of medical conditions in paediatrics, physical medicine and mental health (the primary fields of practice). Courses in *program evaluation / outcome measures* were not available at the undergraduate level, therefore, as program evaluation and outcome measures become increasingly integral to daily practice, respondents are likely to be more interested in this knowledge.

However, caution should be exercised when interpreting this data. With a 34.8% usable response rate, and nearly 30% of respondents' primary field of practice being paediatrics, it is not clear whether the observed percentages of respondents' primary field

of practice are the true representation of the population. It might be that the paediatrics occupational therapists were keener to reply to these questionnaires than others, as the topics of continuing professional education most suggested by the respondents were related to this primary field of practice.

Comments, Concerns, and Suggestions

Among six comments, concerns, and suggestions most frequently cited by the respondents, *failure to accommodate appropriate learning styles*, *lack of time* (personal and work), and *high cost* were already discussed as barriers in the previous section. Respondents also reported two other concerns and provided suggestions.

One concern was the *lack of or limited interaction and discussion opportunities* when continuing professional education is delivered via the Internet. Interaction and discussion with other learners and the instructors were very important to 14% of the occupational therapist-respondents (Burwash & Cotkin, 1999; Steward, 2001). However, some respondents who had previously taken Internet-based courses commented that interaction or discussion were not limited, and were assisted with technology such as chat rooms, WebBoard, and discussion groups.

Another concern expressed by the respondents was the *lack of or limited hands-on practice opportunities* when taking Internet-based continuing education because respondents believed that the "art" of the occupational therapy courses involve "hands-on" and practical components. Respondents were concerned that the Internet-based courses may fail to accommodate the opportunity to learn these kinds of skills.

In order to retain the interactive components of some occupational therapy related on-line courses, *Web chat rooms or discussion groups* were suggested by some of the respondents. Similar suggestions were identified by slightly over 12% of the respondents (who preferred self-directed learning) as the options that best suited their needs (Banister Research & Consulting Inc., 1999). Anderson (1998) confirmed that continuous communication and frequent feedback between instructor and online students was very important. In addition, in the present study, *classroom time to provide opportunities for interaction and discussion with instructors and other learners, demos, and hands-on exercises* were also suggested by some respondents. This was to ensure opportunities for learning hands-on practical skills.

Some respondents reported that they were unsure what to expect from Internet-based continuing education. The requirement for computer and Internet experience were not the only factors. Knowledge of the instructor's expectations on learners was also considered to be important. Early communication through e-mail at the beginning of the course was recommended to ensure online students understood what was expected of them and to promote a better anticipation of the course requirements (White, 2000). In addition, some respondents in the present study would like to have their questions answered promptly. White (2000) confirmed that online students prefer immediate feedback from the instructors.

Generalizability of the Results

Gender and place of residence distributions of the respondents reflected that of the population, that is, Alberta occupational therapists. Gender distribution of the respondents also reflected that of the CAOT membership. It may be assumed that the results of this study are generalizable to practicing occupational therapists in Alberta. Some characteristics of the sample may resemble other professions. For example, nursing and physical therapy are also professions with disproportionately higher numbers of women, but how these proportions compare to Alberta occupational therapists was not examined. In addition, it is not known whether occupational therapists in other Canadian provinces have similar access to computers and the Internet.

Limitations

This study focused on continuing professional education delivered solely over the Internet. It did not examine continuing professional education that uses a combination of the Internet and face-to-face methods. The findings in this study indicated respondents' attitudes towards continuing professional education and Internet-based continuing education, which may not necessarily predict their behaviour.

Results showed that about 50% of respondents reported they were interested "4" or "5" (very interested) and "61 – 80%" or "81 – 100%" likely to take continuing education via the Internet. But it is not known if 50% is high or low because no information is available from other Canadian provinces for comparison. The study

conducted in British Columbia (Stanton, 2001) was based on a convenience sample using a different question (although it was also addressing Internet-based continuing education).

Even though respondents reported their perceived likelihood of taking continuing education over the Internet, it is unsure what factors would influence their decisions to actually take an Internet-based continuing education course if cost, length of the course, and time were taken into consideration. In this study, respondents rated their perceived likelihood based on ideal conditions. The original intention of providing these conditions was to make sure that every respondent rated the perceived likelihood based on similar situations for comparison.

In survey question number one, some of the terms may have interpreted differently, especially *home education* and *Internet*. This was evident by the very wide range of frequency reported by respondents of attending these two types of continuing professional education. For example, some respondents may have more broadly interpreted the meaning of *home education* than we did (e.g. study at home through journal reading). This could explain why one respondent reported attending *home education* 120 times *in the past 12 months*.

Implications for Continuing Professional Education

The findings of this study provide useful information for organizations that plan and organize continuing professional and graduate education targeted at occupational therapists in Alberta.

Under the *reasons for taking continuing education*, learners linked continuing professional education with *maintaining clinical competence*. Therefore, Internet-based continuing education needs to address clinical competence. In addition, respondents were very concerned about interaction and discussion opportunities with instructors and other learners when taking continuing professional education courses. This may also explain why they preferred and thought *face-to-face continuing education*, such as conferences / seminars, were the most useful continuing professional education delivery methods. As a result, interaction and discussion should be incorporated into Internet-based courses using chat rooms, discussion groups, or WebBoards. The schedule for continuing professional education courses needs to be flexible in order to address respondents' *lack of personal time* and their preference for *non-credit courses* (for both continuing professional education courses and Internet-based continuing education).

More respondents ranked *availability of reading materials* such as articles and textbooks as the most important component of continuing professional education rather than *access to feedback* from the instructors and on assignments, and than the opportunity to *discuss* topics with other learners. Since not all learners have access to "state of the art" equipment, technology required for course delivery needs to be taken into consideration by planners when designing Internet-based courses. From the findings of

the present study, less than 50% of respondents were connected by high-speed Internet at home. Non high-speed users might be affected when downloading certain files such as graphics. Therefore, organizations planning for continuing professional education over the Internet would need to consider varying levels of accessibility among learners.

Respondents' *reported computer experiences* and *perceived computer knowledge*, *access to computers* and the *Internet*, *challenges* that respondents face when taking continuing education over the Internet, *degree of interest* and perceived *likelihood* of taking Internet-based continuing education were valuable information as well. As these data were not available prior to this study, they can be used for future comparisons. There is also a need for consistent definition of factors such as cost of continuing professional education. Organizations such as Regional Health Authorities or employers may want to arrive at a consistent definition of cost and funding allocated for continuing professional education in rehabilitation, for example, including direct and indirect costs to employers and to employees.

Implications for Future Research

Information on the availability of Internet-based continuing professional education courses in occupational therapy was not available in the literature, therefore, research to examine the number and topics of such courses is needed. Since the present study was focused on occupational therapists' perceptions of Internet-based continuing education and their perceived likelihood of taking Internet-based continuing professional education, factors that influence occupational therapists' perceived likelihood of taking

Internet-based continuing professional education courses were not examined. Research that examines these factors will help organizations better understand potential learners' needs, hence, to plan and organize Internet-based continuing professional education courses to meet occupational therapists' needs more effectively. Also, focus groups and pilot projects of Internet-based occupational therapy continuing education courses are recommended to better define the parameters that will meet the expectations of both planners and learners, to explore learners' views on the Internet as a useful alternative delivery tool and to examine the issue of costs of taking Internet-based courses. Finally, a national survey similar to the present study is recommended to identify if there are any interprovincial differences and to make comparisons among occupational therapists across Canada.

Conclusions

Internet-based continuing education in occupational therapy is in its infancy as demonstrated by a small number of respondents who had previously taken courses over the Internet. There are great expectations for Internet-based continuing professional education because of its ability to provide courses for learners in rural areas, and its flexible time schedule.

From the findings of this study, however, *geography* was not only a barrier for occupational therapists residing in rural Alberta but also a barrier for occupational therapists residing in the major cities when taking *continuing professional education courses* in the past 12 months. The findings also showed that three categories of place of

residence and whether hospital-based versus non-hospital-based employment did not make any statistical differences in respondents' *perceived likelihood* of taking *Internet-based continuing professional education courses*. The reason for this could be that occupational therapy continuing professional education courses are highly field- or area-specific, and interested occupational therapists must travel to the location of the course wherever it is offered. Furthermore, no matter where the respondents resided or worked, major cities or hospitals may not have offered the specific courses that they were looking for. Therefore, the barriers of *geography* and *lack of suitable topics* may be interconnected. The topics suggested by the respondents that they would be most likely to take continuing professional education over the Internet were highly field- or area-specific. If organizations responsible for occupational therapy continuing professional education could incorporate these highly specific topics in their course content, they may succeed in resolving the barriers of lack of suitable topics as well as the barrier of geography for Alberta occupational therapists.

Besides the barrier of *lack of suitable* or *relevant topics* for Internet-based occupational therapy continuing professional education, concerns were raised by respondents regarding the *lack of or limited interaction or discussion with instructors and learners* and *lack of or limited hands-on practice opportunities* when taking Internet-based continuing education. This is consistent with the findings of Burwash and Cotkin (1999) and Steward (2001). Therefore, the planners for occupational therapy continuing professional education would be advised to address respondents' concerns regarding interaction, discussion, and hands-on practice opportunities by incorporating respondents' suggestions and the findings of other researchers on how to increase interaction or

discussion between instructors and learners, and on how to ensure that learners effectively learn the practical skills and knowledge. In other words, if the planners could take into account the barriers that respondents perceived when taking Internet-based courses, and respondents' concerns and suggestions, the Internet might prove to be a very useful alternative delivery tool for occupational therapy continuing professional education.

Internet as an alternative tool for delivery of continuing professional education for occupational therapists still cannot resolve the fundamental issue of lacking personal time. A number of studies (King, 1999; Simons, 1999; Steward, 2001) found that possibly Internet-based continuing education can remove time constraints for occupational therapists when pursuing continuing professional education by allowing learners to access courses from a distance through the Internet at their preferred time (we would add: except when synchronous sessions are a course requirement). However, when taking continuing professional education over the Internet, some learners may require more personal time to meet course requirements especially if they have to up-grade their computer skills and knowledge compared to the traditional face-to-face delivery methods such as presentations, seminars, and workshops. In the present study over 90% of respondents were female, and likely individual therapists with family commitments who possibly would experience barriers to accessing continuing professional education from competing family and work obligations. Although learners accessing Internet-based courses can avoid travelling to the continuing professional education sites (King, 1999; Steward, 2001), and Internet-based courses may seem to reduce pressure on their family and work commitments (Simons, 1999); Internet-based

learners still require spending time to meet the course requirements. As a result, Internet-based learners may still experience pressure and time competition with family and work roles.

Indeed, barriers that were not previously associated with continuing professional education were perceived by the respondents when taking Internet-based courses. These perceived challenges that related to Internet-based continuing education were *lack of employers' subsidization*, *lack of computer training*, *lack of Internet experience*, *failure to accommodate appropriate learning styles*, and *lack of equipment*. To conclude, in order for Internet to be accepted as a common, useful and alternative delivery tool for continuing professional education in occupational therapy, the perceived barriers and concerns will have to be addressed.

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APPENDICES

Appendix A

Rationale for Sample Size Calculation

Rationale for Sample Size Calculation (minimum respondents required)

(Glass & Hopkins, 1996, p.322)

- Let **p** be the sample proportion that will return the survey, which is 0.50, based on an *estimated response rate of 50%.*
- Let **q** be the sample proportion that will not return the survey, which is equal to 1 minus p = **(1-p)** and is estimated at 0.50 based on the estimated response rate of 50%
- Preset **standard error of proportion** at **2.5%** (*at 95% confidence interval*)
- Let **n** be the minimum number of respondents required for statistical analyses to achieve a preset standard error of proportion at 0.025 based on the estimated response rate of 50%.

$$\text{Standard Error}^2 = \frac{pq}{n}$$

$$0.025^2 = \frac{(0.5)(0.5)}{n}$$

$$\mathbf{n} = \mathbf{400}$$

Therefore, **400** is the minimum number of respondents required for statistical analyses to achieve a preset standard error of proportion at 0.025 with 95% confidence interval based on an estimated at a response rate of 50%.

Appendix B

Survey

Survey on the Delivery of Continuing Education Courses in Occupational Therapy

Previous research has shown that time constraints, costs, availability, and relevance of topics were concerns of accessing continuing professional education courses. Occupational therapists have indicated their strong interest in alternatives to traditional centrally located continuing professional education. To develop appropriate alternatives that will better meet occupational therapists' needs, additional information is needed. The purpose of this study is to describe Alberta occupational therapists' experiences, perceptions, interests, and challenges in an alternative delivery method for continuing education so that its viability can be better determined. If you choose to participate, please return the completed questionnaire in the enclosed pre-addressed envelop or return to **Violet Pui, Department of Occupational Therapy, Faculty of Rehabilitation Medicine, 2-64 Corbett Hall, University of Alberta, Edmonton, Alberta T6G 2G4** by *October 19, 2001* (*Friday*). To save paper, this survey is printed on both sides; please make sure you fill out both sides of each page of the survey.

The terms "continuing education", "continuing profession education" or "continuing education courses" are used throughout this questionnaire and are defined as all courses for enhancing continuing competence in clinical practice and professional development, such as conferences, seminars, workshops, teleconferences, presentations, Internet-based courses, and university credit courses.

Part 1: Continuing education

1) Listed below are a number of ways a person can participate in continuing education.

Please indicate how frequently you have attended each of the following in the <u>past 12 months</u> by **writing a number** beside the type of continuing education.	For each type you selected on the left, what was a **typical** length of time you spent on an event?	What was the **average** full registration fee per event on the left?
a) ____ Conference	_____Hour	$_____
b) ____ Correspondence course	_____Hour	$_____
c) ____ Home education	_____Hour	$_____
d) ____ Internet	_____Hour	$_____
e) ____ Presentation	_____Hour	$_____
f) ____ Seminar	_____Hour	$_____
g) ____ Teleconference	_____Hour	$_____
h) ____ Video conference / Telehealth	_____Hour	$_____

2) What are your reasons for taking the continuing education courses? Please **rank** your top 3 reasons from the following list from the most important to the least important. Put a "1" next to the reason you consider the most important, a "2" next to the second most important and a "3" next to the third most important.

a) ____ For personal development
b) ____ To increase skills and knowledge
c) ____ Positive value of learning
d) ____ Desire to learn subject matter to teach others
e) ____ Wanting to advance in clinical position
f) ____ To increase salary or benefits at work
g) ____ A desire to do research
h) ____ To maintain clinical competence
i) ____ Other: please specify _____

3) Do you plan to take any continuing education courses in the next 2 years?

☐ **Yes**

☐ **No**

3a) If **no**, what are your reasons for not taking any continuing education courses in the next 2 years?

_____
_____
_____

4) What type of continuing education course most interest you? Please **circle one**.

a) University credit course
b) Continuing education credit course
c) Non-credit courses on topics of interest
d) None
e) Not sure

5) Please indicate below the usefulness of the following delivery types to your continuing education by **circling** the appropriate number for **each** type.

	Not at all Useful		Somewhat Useful		Very Useful
a) Self-directed / Self study	1	2	3	4	5
b) Conference / Seminar	1	2	3	4	5
c) Correspondence course	1	2	3	4	5
d) Internet-based course (course taught on the Web)	1	2	3	4	5
e) Teleconference / Telehealth / Video conference	1	2	3	4	5

6) How long does it **typically** take you to go to continuing education courses in occupational therapy (round-trip)? Please **circle one**.

a) Less than 30 minutes
b) 30 minutes to less than 1 hour
c) 1 hour to less than 2 hours
d) 2 hours to less than 4 hours
e) 4 hours or more

7) How important are the following items and activities in delivering continuing education to you? Please **rank** the following items and activities. Put a "1" next to the one you consider the most important, a "2" next to the second most important … and a "5" next to the least important.

a) ____ Availability of articles
b) ____ Availability of textbooks
c) ____ Discussion with classmates
d) ____ Feedback from the instructor
e) ____ Feedback on assignments

Part 2: Computer

8) Do you currently have access to a computer at home?

❑ **Yes** ❑ **No**

8a) i> If **yes**, is this computer connected to the Internet?
❑ Yes
❑ No

8b) If **no**, are you planning to get a computer in the next 6 months?
❑ Yes
❑ No
❑ Not sure

8a) ii> If **yes**, is this a high-speed Internet connection (e.g., Cable Modem, ADSL, T1)?
❑ Yes
❑ No

Go to question number 9.

9) Do you currently have access to a computer at work?

- ☐ **Yes**
- ☐ **No**

9a) i> If **yes**, is this computer connected to the Internet?

- ☐ Yes
- ☐ No

9b) If **no**, will you have access to a computer at work in the next 6 months?

- ☐ Yes
- ☐ No
- ☐ Not sure

9a) ii> If **yes**, is this a high-speed Internet connection (e.g., Cable Modem, ADSL, T1)?

- ☐ Yes
- ☐ No

Go to question number 10.

10) Please indicate below how much experience you consider that you have with computers by **circling** the appropriate number for **each** category.

		Not at all Experienced		Somewhat Experienced		Very Experienced
a)	Word processing (e.g., Microsoft Word)	1	2	3	4	5
b)	Spreadsheets (e.g., Excel)	1	2	3	4	5
c)	World Wide Web (e.g., Netscape Navigator, Internet Explorer)	1	2	3	4	5
d)	E-mail (e.g., Outlook, Eudora)	1	2	3	4	5
e)	Search engines (e.g., Alta Vista, Yahoo)	1	2	3	4	5
f)	Other application(s) you regularly use: please specify _____	1	2	3	4	5

11) Do you feel that your computer knowledge is sufficient to take an Internet-based distance education course? Please **check one**.

- ☐ **Yes**
- ☐ **No** 11a) If **no**, what additional information would be helpful? _____
- ☐ **Not sure**

Part 3: Internet-based distance education

12) Several barriers have been previously identified for the delivery of Internet-based continuing education. To what degree is each of the following a barrier to you? Please **circle** the appropriate number for **each** element.

		Not at all a Barrier		Somewhat of a Barrier		Very much a Barrier
a)	Lack of computer training	1	2	3	4	5
b)	Failure to accommodate appropriate learning styles	1	2	3	4	5
c)	Lack of Internet experience	1	2	3	4	5
d)	Cost	1	2	3	4	5
e)	Lack of suitable topics for this type of delivery	1	2	3	4	5
f)	Lack of employers' subsidization of continuing education	1	2	3	4	5
g)	Lack of personal time to take courses	1	2	3	4	5
h)	Lack of equipment, (e.g. computer and Internet access)	1	2	3	4	5

13) Are you aware of Internet-based continuing education courses in occupational therapy offered by a College / Institute / University?

- ☐ **Yes**
- ☐ **No**

13a) If yes, have you previously taken an Internet-based continuing education course from a College / Institute / University?

- ☐ Yes
- ☐ No

14) What type of Internet-based courses most interest you? Please **circle one**.

a) University credit course
b) Continuing education credit course
c) Non-credit courses on topics of interest
d) None
e) Not sure

15) What is your degree of interest in taking a continuing education course on the Internet (assuming topics are of interest, and the cost, length of the course and time are not a concern to you)? Please **circle** the appropriate number.

Not at all Interested		**Somewhat Interested**		**Very Interested**
1	2	3	4	5

16) How likely is it that you will take an Internet-based continuing education course that is on a topic of interest to you (if cost, length of the course, and time are not a concern to you)? Please **circle one**.

a) 0 – 20%
b) 21 – 40%
c) 41 – 60%
d) 61 – 80%
e) 81 – 100%

17) In the space below, please **list** the top 3 occupational therapy related topics that you would most likely take through Internet-based continuing education. Please be as specific as possible. (Example: Program evaluation in mental health settings)

a) _____

b) _____

c) _____

18) Please list any comments, concerns, or suggestions that you have about delivering continuing education by the Internet (use additional paper if necessary).

_____

_____

_____

_____

Part 4: Demographics

19) Gender

- ❑ Female
- ❑ Male

20) Place of residence. Please **circle one** of the following below.

a) Edmonton (and suburbs)
b) Calgary (and suburbs)
c) Fort McMurray
d) Grande Prairie
e) Lethbridge
f) Medicine Hat
g) Red Deer
h) Other

21) Please indicate your highest level of education. Please **circle one**.

a) Diploma
b) Bachelors degree
c) Masters degree
d) PhD
e) Other: please specify _____

22) How long have you worked as an occupational therapist? Please **circle one**.

a) 5 years and under
b) From 6 to 10 years
c) From 11 to 15 years
d) From 16 to 20 years
e) 21 or more years

23) Where are you currently working as an occupational therapist? Please **check all** that apply.

- ❑ a) Hospital
- ❑ b) School
- ❑ c) Long-term care facility
- ❑ d) Community
- ❑ e) Other: please specify _____

24) Please **circle** the letter of the primary location in which you are currently working in question number 23.

25) What is your current field of practice? Please **check all** that apply.

- ☐ a) Administration
- ☐ b) College / University
- ☐ c) Geriatric
- ☐ d) Hand Therapy
- ☐ e) Mental Health
- ☐ f) Pediatric
- ☐ g) Physical Disabilities
- ☐ h) Vocational Rehabilitation
- ☐ i) Other: please specify _____

26) Please **circle** the letter of what you consider to be your primary field of practice in question number 25.

27) Age? Please **circle one**.

a) 25 and under
b) From 26 to 35
c) From 36 to 45
d) From 46 to 55
e) 56 or above

28) Please write any comments, concerns, or suggestions that you have regarding this survey (use additional paper if necessary).

_____

_____

_____

_____

_____

Thank you for your assistance

Appendix C

Survey Cover letter

October 05, 2001

Re: Survey on the Delivery Continuing Education Courses in Occupational Therapy

Dear Colleague:

I am writing to invite you to take part in a study on the delivery of continuing education courses in occupational therapy in Alberta. Previous research has shown that time constraints, costs, availability, and relevance of topics were concerns of accessing continuing professional education courses. Occupational therapists have indicated their strong interest in alternatives to traditional centrally located continuing professional education. To develop appropriate alternatives that will better meet occupational therapists' needs, additional information is needed. The purpose of this study is to describe Alberta occupational therapists' experiences, perceptions, interests, and challenges in an alternative delivery method for continuing education so that its viability can be better determined. I am a graduate student at the University of Alberta in occupational therapy, and this project is part of my thesis. Your mailing address has been obtained from the Alberta Association of Registered Occupational Therapists (AAROT).

All information collected will be kept anonymous; you are not required to give your name. Returned surveys will be stored in a safely locked and secured place in the Occupational Therapy Department at the University of Alberta for 5 years. Only group results will be reported; no individual will be identified in any report. Your return of the enclosed survey will be taken as your consent to participate. Your participation in this study is voluntary.

If you choose to participate, please return the completed questionnaire in the enclosed pre-addressed envelop by October 19, 2001 (Friday) or earlier. If there is any question that you do not wish to answer, please leave it blank and proceed to the next question. The survey should take about 15 minutes to complete.

If you have any questions, please feel free to e-mail me (Violet Pui) at **mpui@ualberta.ca** or contact my supervisor, Dr. Lili Liu, or me at (780) 492-5108. If you have any concerns regarding this research study, please contact Dr. Paul Hagler, Associate Dean, Graduate Studies and Research, at (780) 492-9674. Dr. Hagler has no affiliation with this study.

If you would like to have a summary of the results, which will probably be available in spring 2002, please e-mail me at **mpui@ualberta.ca** to request the results when available.

Thank you very much for helping with this important study.

Sincerely,

Violet Pui, BScOT, OT(C)
Graduate Student
MScOT program
Faculty of Rehabilitation Medicine
University of Alberta

Appendix D

Survey Follow-up Letter

October 25, 2001

Re: Survey on the Delivery of Continuing Education Courses in Occupational Therapy

Dear Colleague:

On October 05, 2001, a questionnaire seeking your input on the delivery of continuing education courses in occupational therapy was mailed to you; I hope that you have received it. If you did not, and you are willing to participate, please e-mail me at **mpui@ualberta.ca** or call me at (780) 492-5108 to have a copy of the questionnaire mailed to you. You can also print out a copy of the questionnaire at **http://www.rehabmed.ualberta.ca/survey/**

If you have already completed and returned the questionnaire, please accept my sincere thanks for contributing to this research in occupational therapy. If not, please consider doing so by November 12, 2001 (Monday), and accept this letter as a friendly reminder. If you cannot locate the survey, you can obtain a copy of the questionnaire through the methods above.

Previous research has shown that time constraints, costs, availability, and relevance of topics were concerns of accessing continuing professional education courses. Occupational therapists have indicated their strong interest in alternatives to traditional centrally located continuing professional education. To develop appropriate alternatives that will better meet occupational therapists' needs, additional information is needed. The purpose of this study is to describe Alberta occupational therapists' experiences, perceptions, interests, and challenges in an alternative delivery method for continuing education so that its viability can be better determined.

If you have any questions, please feel free to e-mail me at **mpui@ualberta.ca** or contact my supervisor, Dr. Lili Liu, or me at (780) 492-5108. If you have any concerns regarding this research study, please contact Dr. Paul Hagler, Associate Dean, Graduate Studies and Research, at (780) 492-9674. Dr. Hagler has no affiliation with this study.

If you would like to have a summary of the results, which will probably be available in spring 2002, please e-mail me at **mpui@ualberta.ca** to request the results when available.

I look forward to receiving your completed questionnaire.

Sincerely,

Violet Pui, BScOT, OT(C)
Graduate Student
MScOT program
Faculty of Rehabilitation Medicine
University of Alberta